Service Manual

ORDER NO.
RRV2368

COMPACT DISC RECORDER

PDR-609

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	PDR-609		
KU/CA	O	AC120V	
WV	O	AC220- 240V	
WY	O	AC220- 240V	

FOR U.S. MODELS

NECESSARY INFORMATION FOR DHHS RULES MARKED ON THE REAR BASE AND ON THE TOP OF CD MECHANISM AS BELOW.

DANGER – LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.

CONTENTS

1. SAFETY INFORMATION ····· 2
2. EXPLODED VIEWS AND PARTS LIST ····· 4
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM ·· 12
4. PCB CONNECTION DIAGRAM ····· 36
5. PCB PARTS LIST ····· 46
6. ADJUSTMENT ····· 51
7. GENERAL INFORMATION ····· 64
7.1 DIAGNOSIS ····· 64
7.1.1 ERROR CODE ····· 64
7.1.2 TROUBLE SHOOTING ····· 66
7.1.3 ERROR MEESAGE “CHECK TEMP” ····· 68
7.1.4 CD-R DISC MANUFACTURER CODE ····· 68
7.1.5 DISASSEMBLY ····· 70
7.1.6 DIAGNOSIS OF CD-R CORE ASSY ····· 71
7.2 PARTS ····· 72
7.2.1 IC ····· 72
7.2.2 DISPLAY ····· 84
8. PANEL FACILITIES AND SPECIFICATIONS ····· 86

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

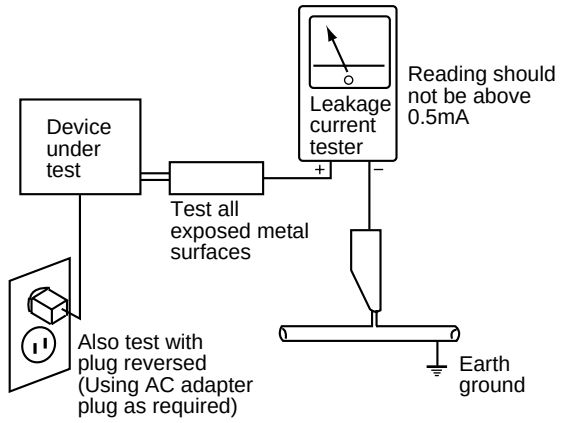
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Reading should not be above 0.5mA
Leakage current tester
+
–
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

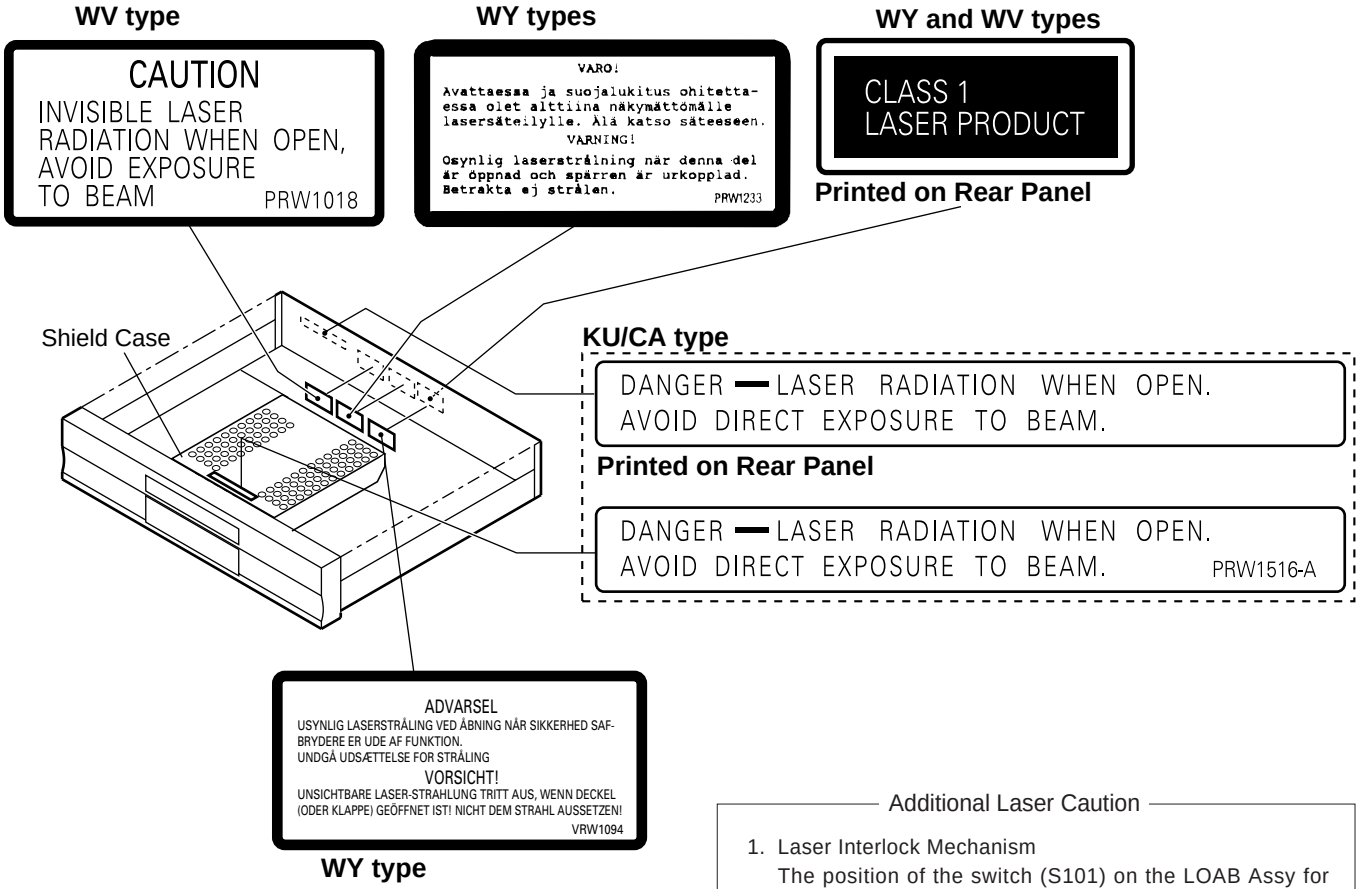
IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 3b.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 23 mW
WAVELENGTH: 778 – 787 nm

LABEL CHECK


WV type
CAUTION
INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO BEAM
PRW1018
WY types
VARO!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.
VARNING!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
PRW1233
WY and WV types
CLASS 1
LASER PRODUCT
Printed on Rear Panel
Shield Case
KU/CA type
DANGER — LASER RADIATION WHEN OPEN.
AVOID DIRECT EXPOSURE TO BEAM.
Printed on Rear Panel
DANGER — LASER RADIATION WHEN OPEN.
AVOID DIRECT EXPOSURE TO BEAM.
PRW1516-A
ADVARSEL
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHED SAFBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING
VORSICHT!
UNSICHTBARE LASER-STRAHLUNG TRITT AUS, WENN DECKEL (ODER KLAPPE) GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!
VRW1094
WY type

Additional Laser Caution

1. Laser Interlock Mechanism
   The position of the switch (S101) on the LOAB Assy for detecting loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S101) is not on TRAY terminal side (TRAY signal is OFF or high level.). Thus, the interlock will no longer function if the switch (S101) is deliberately set to TRAY terminal side (low level).
   The interlock also does not function in the test mode *.
   Laser diode oscillation will continue, if pin 1 of CN101 on the CD-R CORE ASSY is connected to low level.

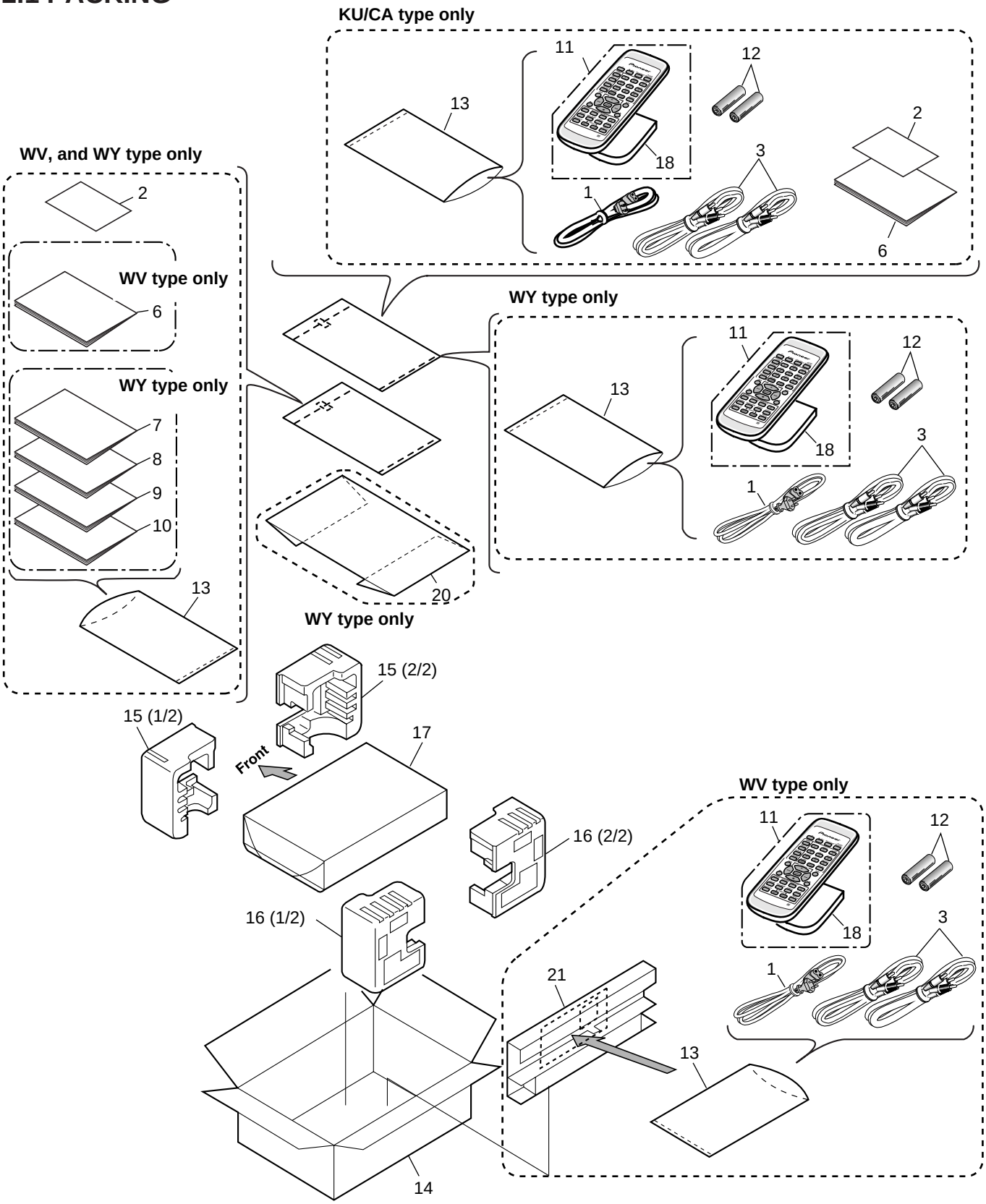
2. When the cover is opened with the servo mechanism block removed and turned over, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

* Refer to page 51.

2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on the product are used for disassembly.*

2.1 PACKING



(1) PACKING PARTS LIST

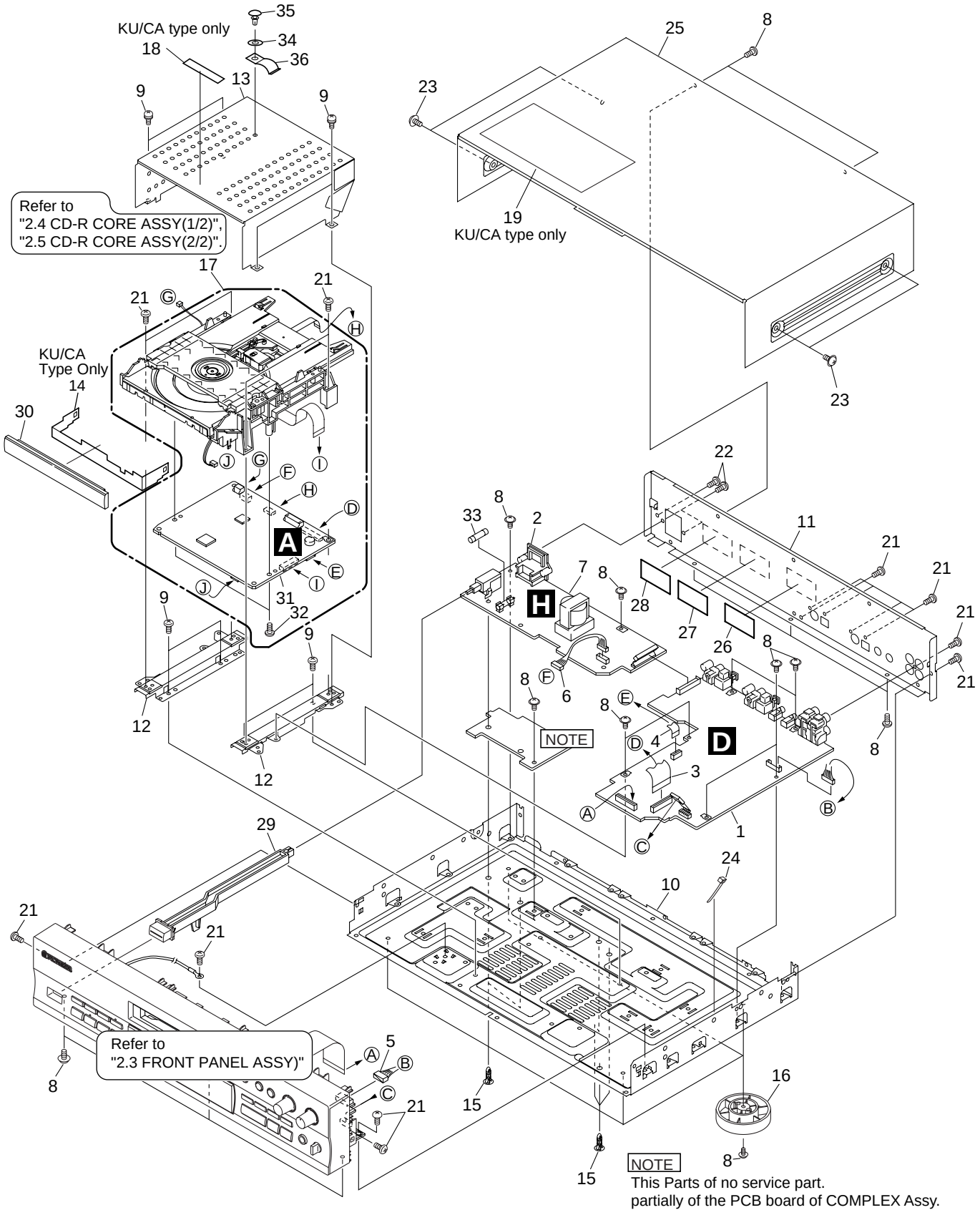
Mark	No.	Description	Part No.
⚠	1	AC Power Cord	See Contrast table (2)
NSP	2	Warranty Card	See Contrast table (2)
	3	Audio Cable (L= 1m)	PDE1249
	4	• • • • •	
	5	• • • • •	
	6	Operating Instructions (English)	See Contrast table (2)
	7	Operating Instructions (German/Italian)	See Contrast table (2)
	8	Operating Instructions (Dutch/Swedish)	See Contrast table (2)
	9	Operating Instructions (Spanish/ Portuguese)	See Contrast table (2)
	10	Operating Instructions (English/French)	See Contrast table (2)
	11	Remote Control Unit	PWW1169
NSP	12	Dry Cell Battery (R6P, AA)	VEM-013
	13	Polyethylene Bag ($0.03 \times 230 \times 340$)	Z21-038
	14	Packing Case	See Contrast table (2)
	15	Protecter (F)	RHA1238
	16	Protecter (R)	RHA1239
	17	Mirror Mat Sheet	Z23-007
	18	Battery Cover	RZN1156
	19	• • • • •	
	20	Accessory Spacer	See Contrast table (2)
	21	Rear Spacer	See Contrast table (2)

(2) CONTRAST TABLE

PDR-609/KU/CA, WV and WY types are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.			Remarks
			KU/CA type	WV type	WY type	
⚠	1	AC Power Cord	ADG7021	ADG7004	ADG1127	
NSP	2	Warranty Card	ARY7045	ARY7022	ARY7022	
	6	Operating Instructions (English)	PRB1306	PRB1306	Not used	
	7	Operating Instructions (German/Italian)	Not used	Not used	PRD1060	
	8	Operating Instructions (Dutch/Swedish)	Not used	Not used	PRD1064	
	9	Operating Instructions (Spanish/ Portuguese)	Not used	Not used	PRD1065	
	10	Operating Instructions (English/ Frenche)	Not used	Not used	PRE1290	
	14	Packing Case	PHG2418	PHG2429	PHG2419	
	20	Accessory Spacer	Not used	Not used	PHC1093	
	21	Rear Spacer	Not used	RHC1072	Not used	

2.2 EXTERIOR SECTION



(1) EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	AUDIO ASSY	See Contrast table (2)
⚠	2	AC Inlet	See Contrast table (2)
	3	25P Flexible Cable/60v	PDD1220
	4	9P Flexible Cable/60v	PDD1221
	5	Connector Ass'y (8p)	PDE1311
	6	Connector Ass'y (6p)	PDE1314
⚠	7	Power Supply Unit	PWR1029
	8	Screw (Steel)	ABA1011
	9	Screw (Steel)	ABA1207
NSP	10	Under Base	PNA2560
	11	Rear Base 609 (Mtl)	See Contrast table (2)
NSP	12	Mecha Base (Mtl)	PNB1623
	13	Shield Case (Mtl)	PNB1630
	14	Shield Plate (Mtl)	See Contrast table (2)
NSP	15	PCB Holder	PNW2029
	16	Insulator	PNW2766
NSP	17	CD-R CORE Ass'y	PXA1631
NSP	18	Caution Label	See Contrast table (2)
	19	Disc Caution Label	See Contrast table (2)
	20	• • • • •	

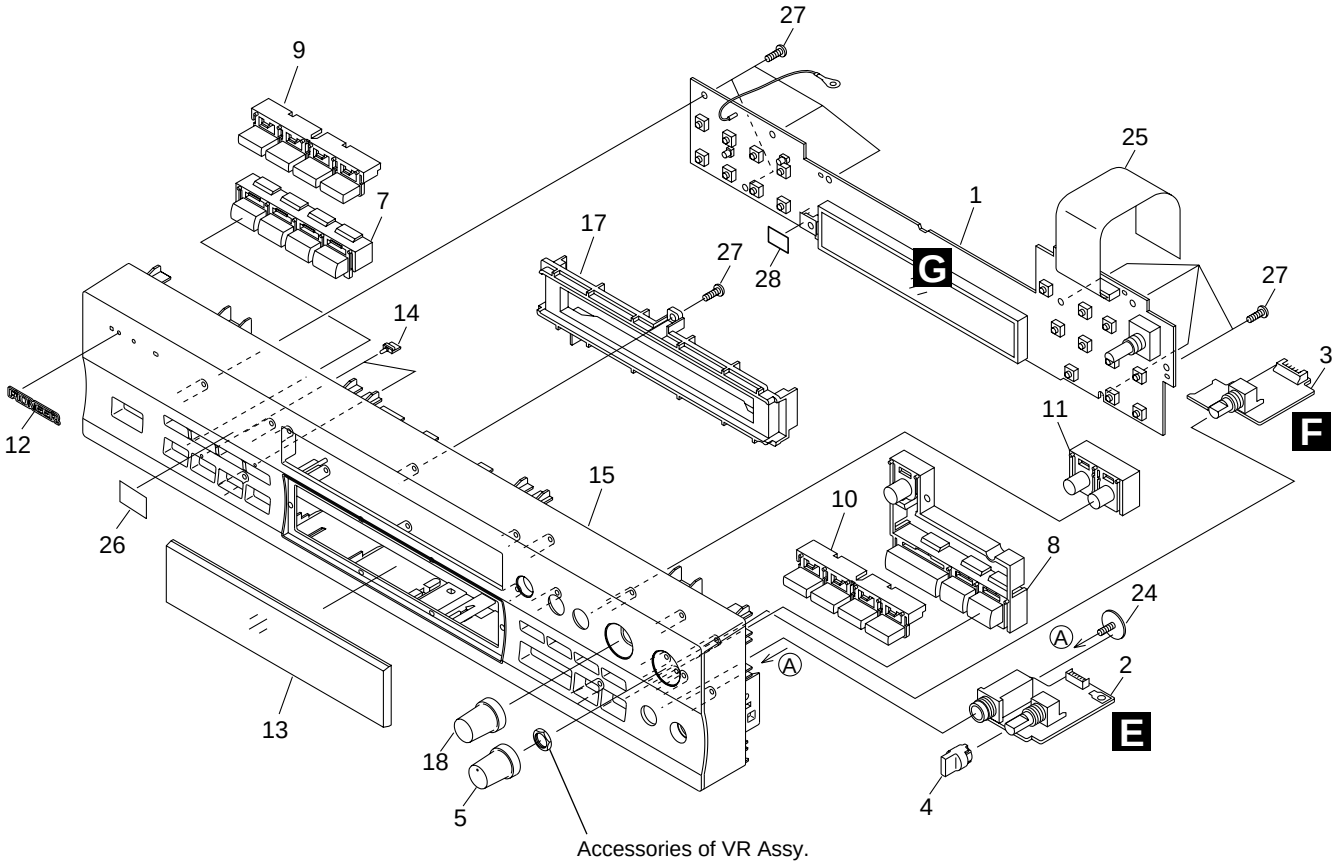
Mark	No.	Description	Part No.
	21	Screw	BBZ30P080FCC
	22	Screw	BBZ40P080FCC
	23	Screw	FBT40P080FZK
	24	Binder	PEC-107
	25	Bonnet (Fe)	PYY1147
	26	Caution Label HE	See Contrast table (2)
	27	Caution Label	See Contrast table (2)
	28	Caution Label	See Contrast table (2)
	29	Power Button B (Abs)	PAC2003
	30	Tray Panel (Abs)	PNW2972
	31	CD-R CORE PCB ASSY	PYY1286
	32	Screw	PPZ30P080FMC
⚠	33	Fuse (FU1: 2A)	215002
	34	Bush	See Contrast table (2)
	35	Nylon Rivet	See Contrast table (2)
	36	Shield Finger	See Contrast table (2)

(2) CONTRAST TABLE

PDR-609/KU/CA, WV and WY types are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.			Remarks
			KU/CA type	WV type	WY type	
	1	AUDIO ASSY	PWZ4098	PWZ4099	PWZ4099	
⚠	2	AC Inlet	AKP7025	AKP7005	AKP7005	
	11	Rear Base 609 (Mtl)	PNA2562	PNA2563	PNA2563	
	14	Shield Plate (Mtl)	PNB1631	Not used	Not used	
NSP	18	Caution Label	PRW1516	Not used	Not used	
	19	Disc Caution Label	PRW1532	Not used	Not used	
	26	Caution Label HE	Not used	Not used	PRW1233	
	27	Caution Label	Not used	Not used	VRW1094	
	28	Caution Label	Not used	PRW1018	Not used	
	34	Bush	ABF1015	Not used	Not used	
	35	Nylon Rivet	AEC1160	Not used	Not used	
	36	Shield Finger	PBK1153	Not used	Not used	

2.3 FRONT PANEL SECTION



(1) FRONT PANEL SECTION PARTS LIST

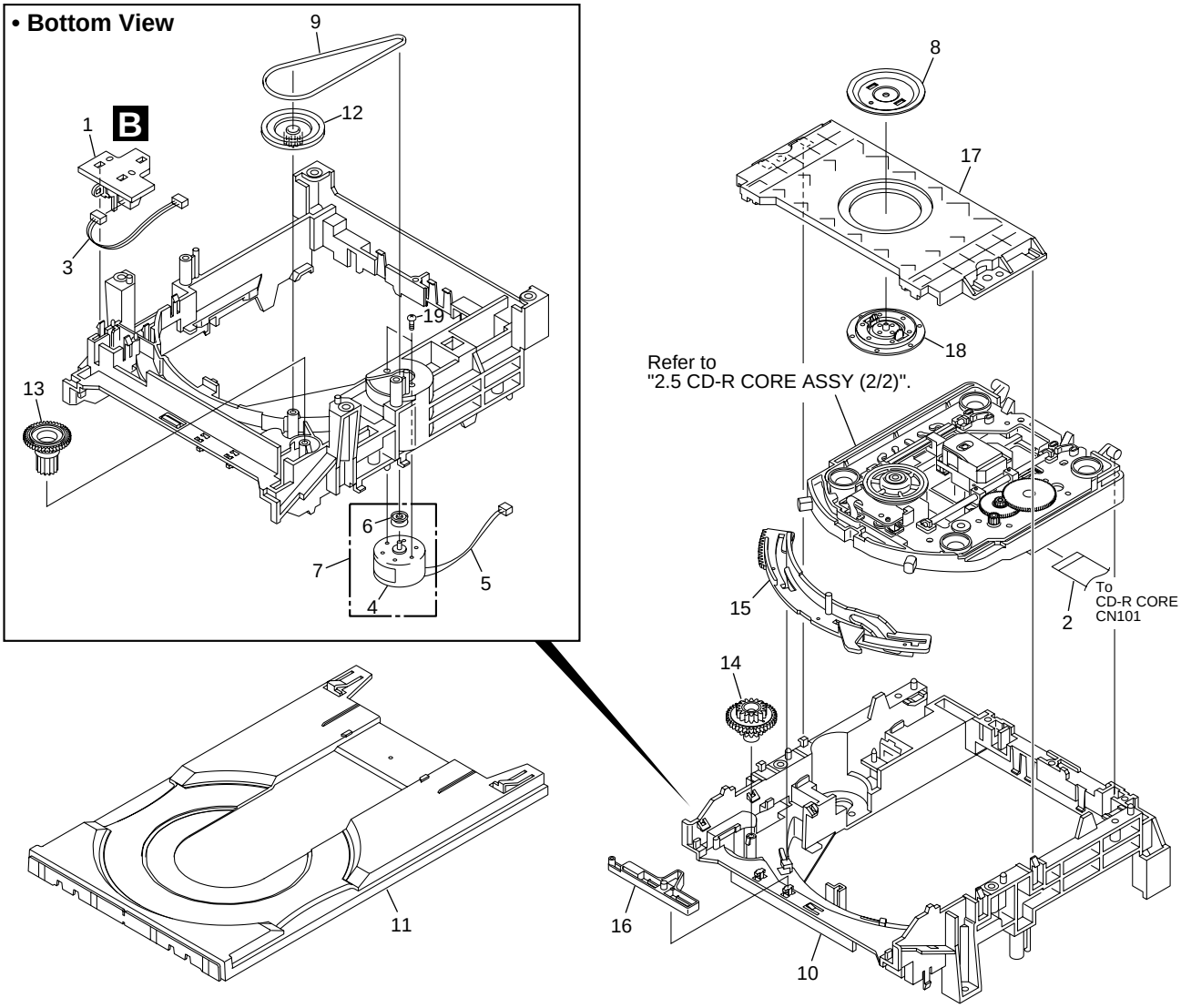
Mark	No.	Description	Part No.
	1	OPERATING ASSY	See Contrast table (2)
NSP	2	HEADPHONE ASSY	See Contrast table (2)
NSP	3	VOLUME ASSY	See Contrast table (2)
	4	Knob (Abs)	PAC1707
	5	Vol Knob (Pls)	PAC1901
	6	• • • • •	
	7	Mode Button B (Abs)	PAC2004
	8	Play Button B (Abs)	PAC2005
	9	Manual Button B L (Abs)	PAC2006
	10	Manual Button B R (Abs)	PAC2007
	11	Rec Button B (Abs)	PAC2025
	12	Name Plate	PAM1776
	13	Display Window OR	See Contrast table (2)
	14	LED Lens(Abs)	PNW2745
	15	Front Panel	See Contrast table (2)
	16	• • • • •	
	17	Sub Panel (Abs)	PNW2975
	18	Jog Knob B (Pls)	RAC2210
	24	Screw With Washer	ABA1005
	25	19P Flexible Cable/60v	PDD1219
	26	CD-R Getter Label	AAX7837
	27	Screw	PPZ30P080FMC
NSP	28	Rimocon Sheet	AEE7021

(2) CONTRAST TABLE

PDR-609/KU/CA, WV and WY types are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.			Remarks
			KU/CA type	WV type	WY type	
	1	OPERATING ASSY	PWZ4108	PWZ4109	PWZ4109	
NSP	2	HEADPHONE ASSY	PWZ4118	PWZ4119	PWZ4119	
NSP	3	VOLUME ASSY	PWZ4128	PWZ4129	PWZ4129	
	13	Display Window OR	PAM1826	PAM1827	PAM1827	
	15	Front Panel	PNW2971	PNW2976	PNW2976	

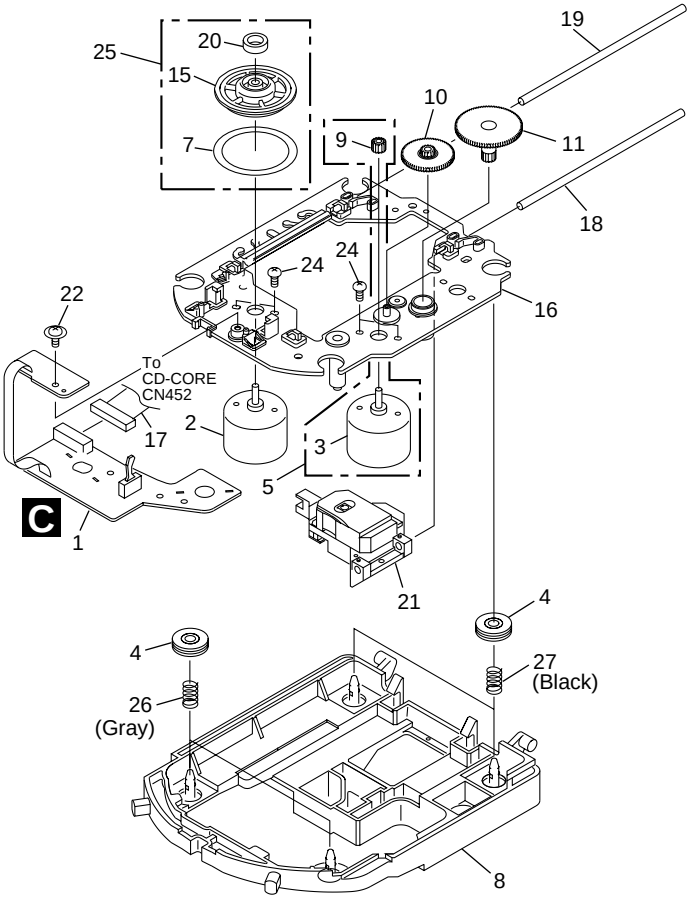
2.4 CD-R CORE ASSY (1/2)



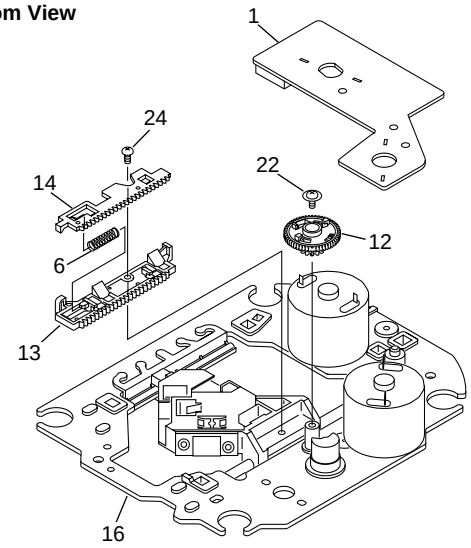
● CD-R CORE ASSY(1/2) PARTS LIST

Mark	No.	Description	Part No.
NSP	1	LOAB Assy	VWG2171
	2	32P Flexible Cable / 30V	PDD1222
	3	Connector Assy	PG03KK-E07
	4	DC Motor (LOADING)	PXM1027
	5	Connector Assy 2P	VKP2253
	6	Motor Pulley	PNW1634
	7	Loading Motor Assy	VXX2505
	8	Clamper Plate	VNE2162
	9	Rubber Belt	VEB1320
	10	Loading Base S	PNW2968
	11	Tray	VNL1910
	12	Gear Pulley	VNL1866
	13	Loading Gear	VNL1860
	14	Drive Gear	VNL1861
	15	Drive Cam	VNL1862
	16	Lock Plate	VNL1820
	17	Bridge	VNL1859
	18	Clamper	VNL1738
	19	Screw	JGZ179028FMC

2.5 CD-R CORE ASSY (2/2)



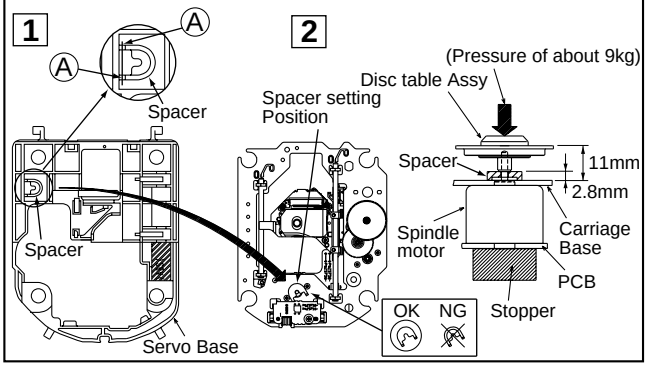
• **Bottom View**



● How to Install the Disc Table

1 Use nippers or other tool to cut the two sections marked Ⓐ in figure 1.

2 While supporting the spindle motor shaft with the stopper, put spacer on top of the carriage base, and stick the disc table on top (takes about 9kg pressure). Take off the spacer.

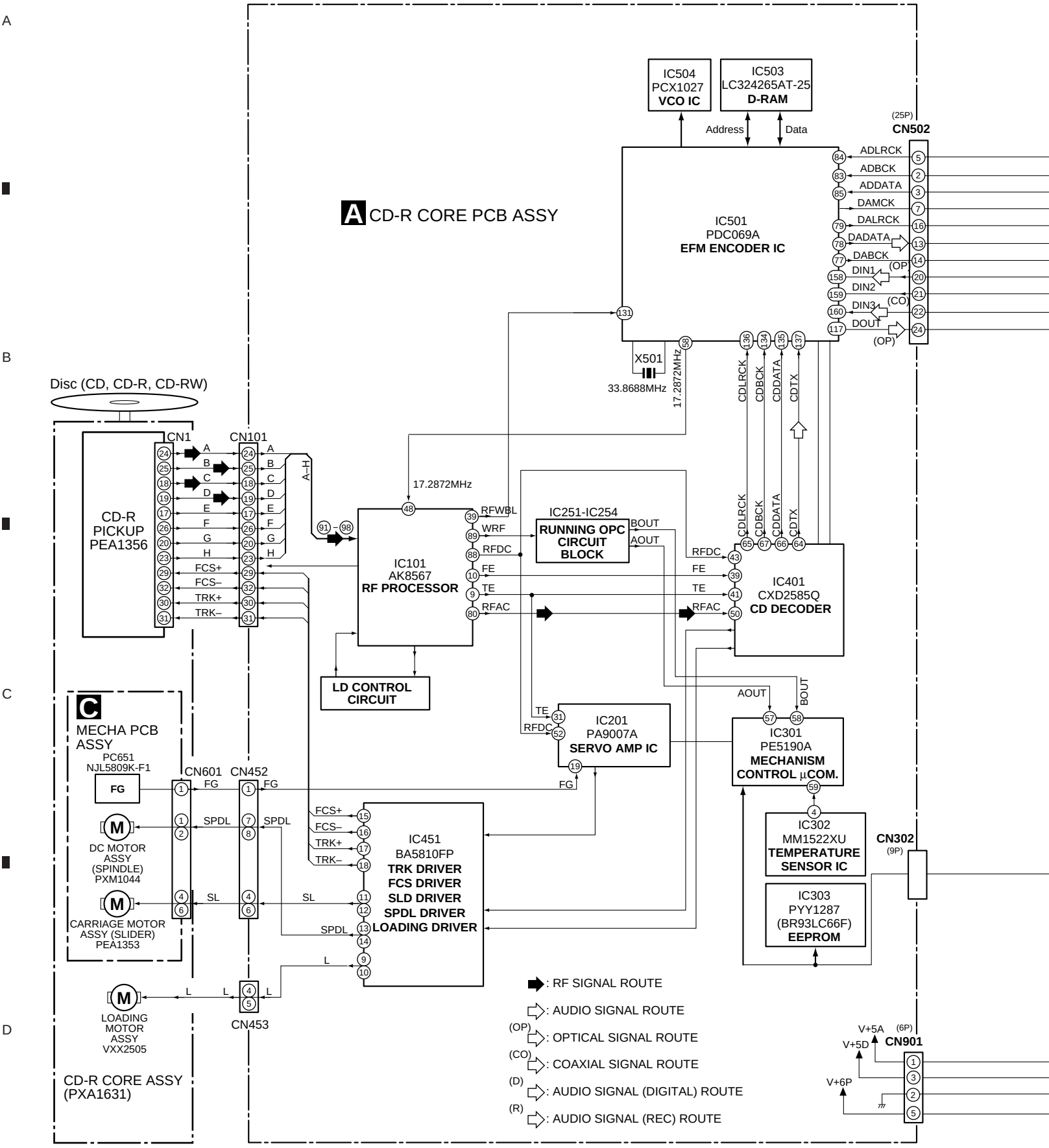


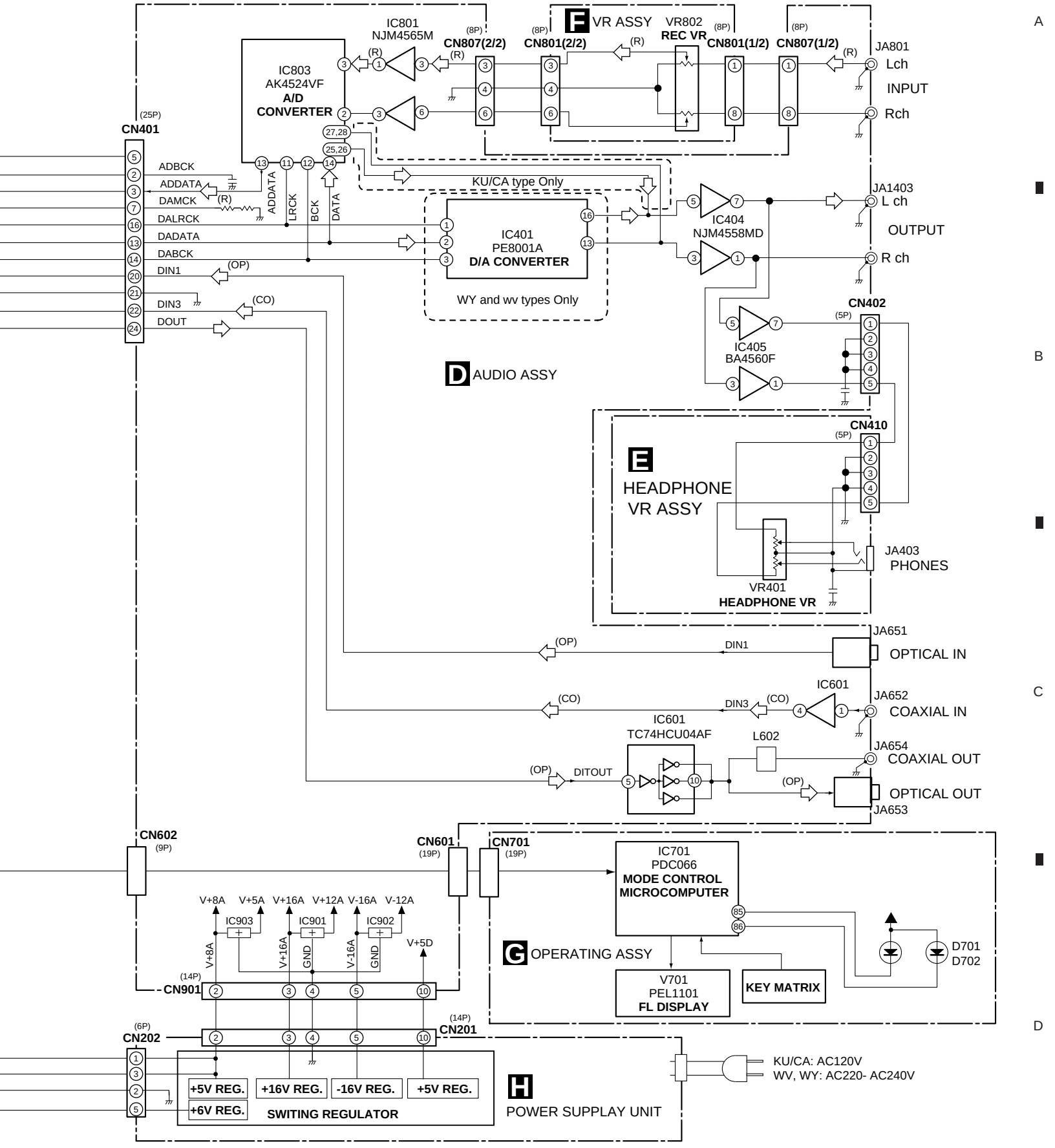
● CD-R CORE ASSY(2/2) PARTS LIST

Mark	No.	Description	Part No.
NSP	1	MECHA PCB Assy	PWX1625
	2	DC Motor (SPINDLE)	PXM1044
NSP	3	DC Motor (CARRIAGE)	PXM1045
	4	Float Rubber	PEB1308
	5	Carriage Motor Assy	PEA1353
NSP	6	Rack Spring	DBH1285
NSP	7	Reflection Sheet	PNM1325
	8	Float Base	PNW2964
	9	Pinion Gear	PNW2994
	10	Gear A	PNW2855
	11	Gear B	PNW2856
	12	Gear C	PNW2969
	13	Rack	PNW2965
	14	Rack Stopper	PNW2966
NSP	15	Disc Table	PNW2860
	16	Carriage Base	PNW2967
	17	Flexible Cable (08P)	VDA1822
	18	Guide Bar	VLL1504
	19	Sub Guide Bar	VLL1505
NSP	20	Magnet	VYM1024
	21	CD-R Pickup	PEA1356
	22	Screw	Z39-018
	23	• • • • •	
	24	Screw	JGZ17P028FMC
	25	Disc Table Assy	PEA1349
	26	Floating Spring (Gray)	PBH1232
	27	Floating Sprin B (Black)	PBH1234

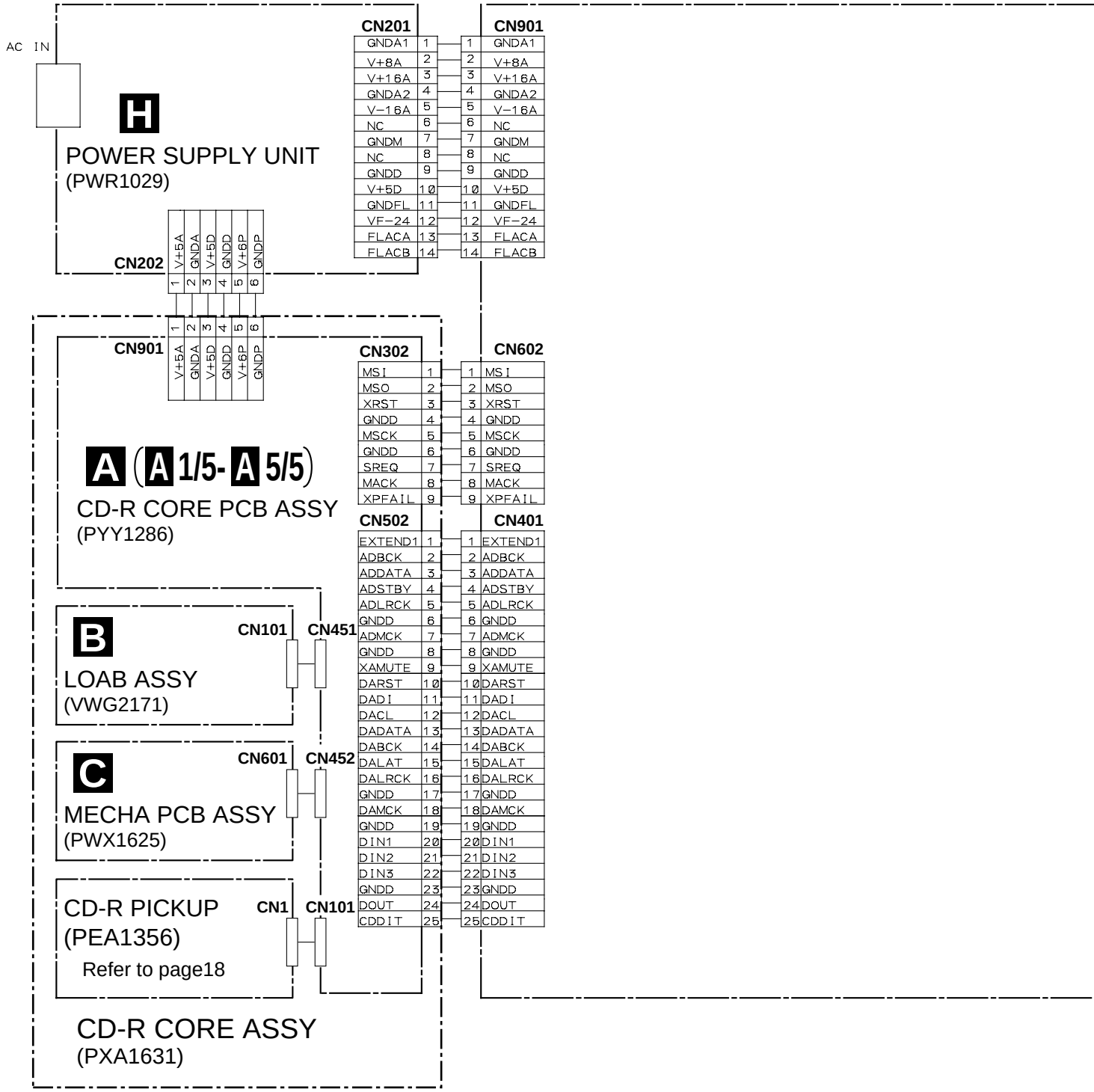
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

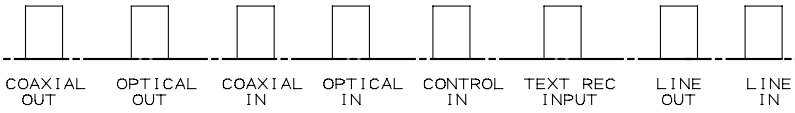



F VR ASSY
VR802
REC VR
IC801
NJM4565M
IC803
AK4524VF
A/D
CONVERTER
CN807(2/2)
CN801(2/2)
CN801(1/2)
CN807(1/2)
JA801
Lch
INPUT
Rch
CN401
(25P)
ADBCK
ADDATA
DAMCK
DALRCK
DADATA
DABCK
DIN1
DIN3
DOUT
KU/CA type Only
IC401
PE8001A
D/A CONVERTER
WY and wv types Only
IC404
NJM4558MD
JA1403
L ch
OUTPUT
R ch
IC405
BA4560F
CN402
(5P)
D AUDIO ASSY
CN410
(5P)
E
HEADPHONE
VR ASSY
JA403
PHONES
VR401
HEADPHONE VR
JA651
OPTICAL IN
IC601
JA652
COAXIAL IN
IC601
TC74HCU04AF
L602
JA654
COAXIAL OUT
DITOUT
OPTICAL OUT
JA653
CN602
(9P)
CN601
(19P)
CN701
(19P)
IC701
PDC066
MODE CONTROL
MICROCOMPUTER
V+8A
V+5A
V+16A
V+12A
V-16A
V-12A
IC903
IC901
IC902
V+5D
GND
G OPERATING ASSY
D701
D702
CN901
(14P)
V701
PEL1101
FL DISPLAY
KEY MATRIX
CN202
(6P)
CN201
(14P)
+5V REG.
+16V REG.
-16V REG.
+5V REG.
+6V REG.
SWITING REGULATOR
H
POWER SUPPLAY UNIT
KU/CA: AC120V
WV, WY: AC220- AC240V

3.2 OVERALL CONNECTION DIAGRAM

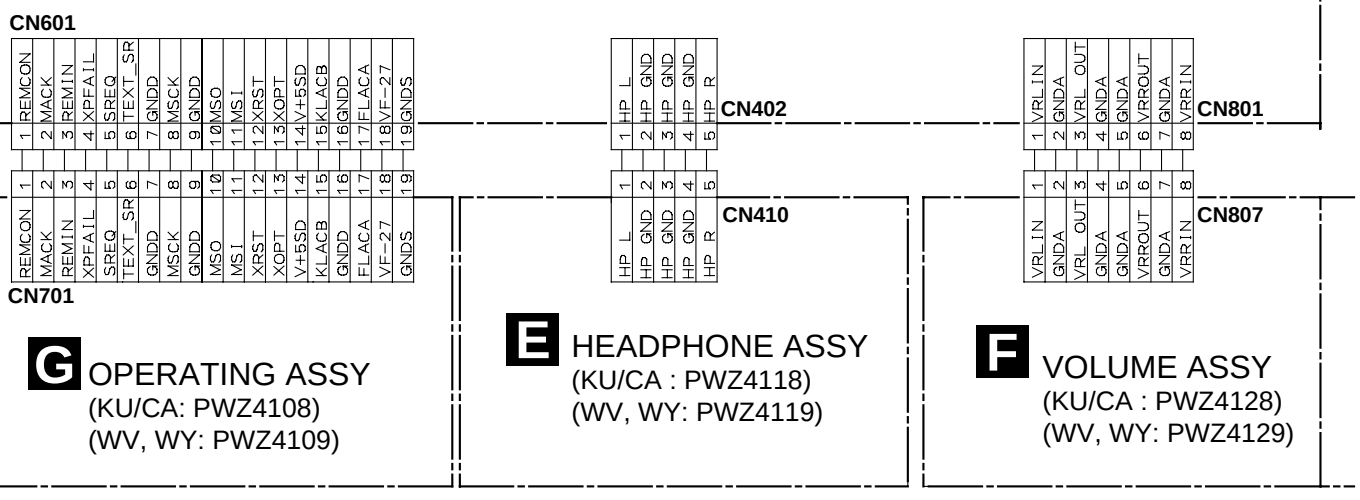


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

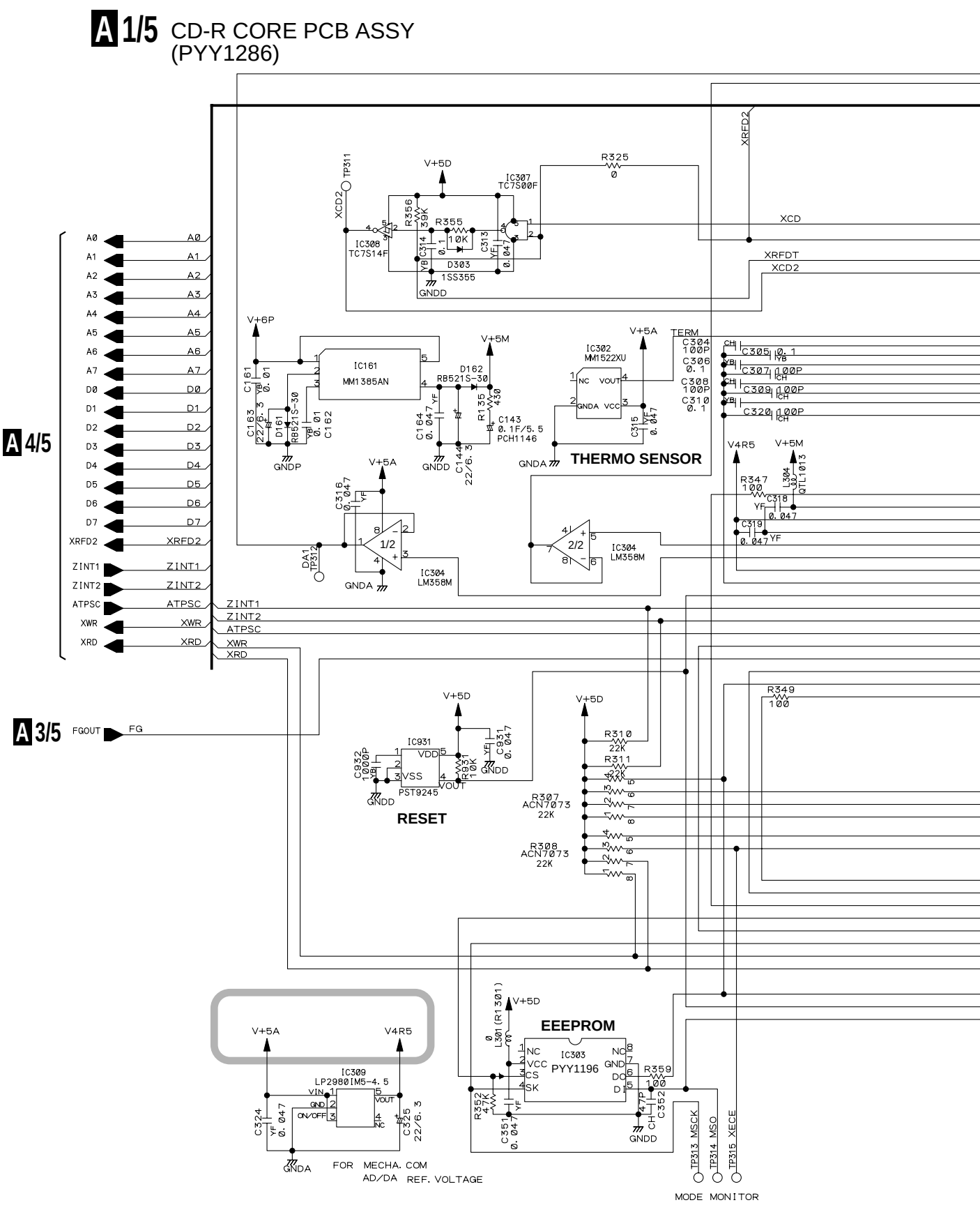


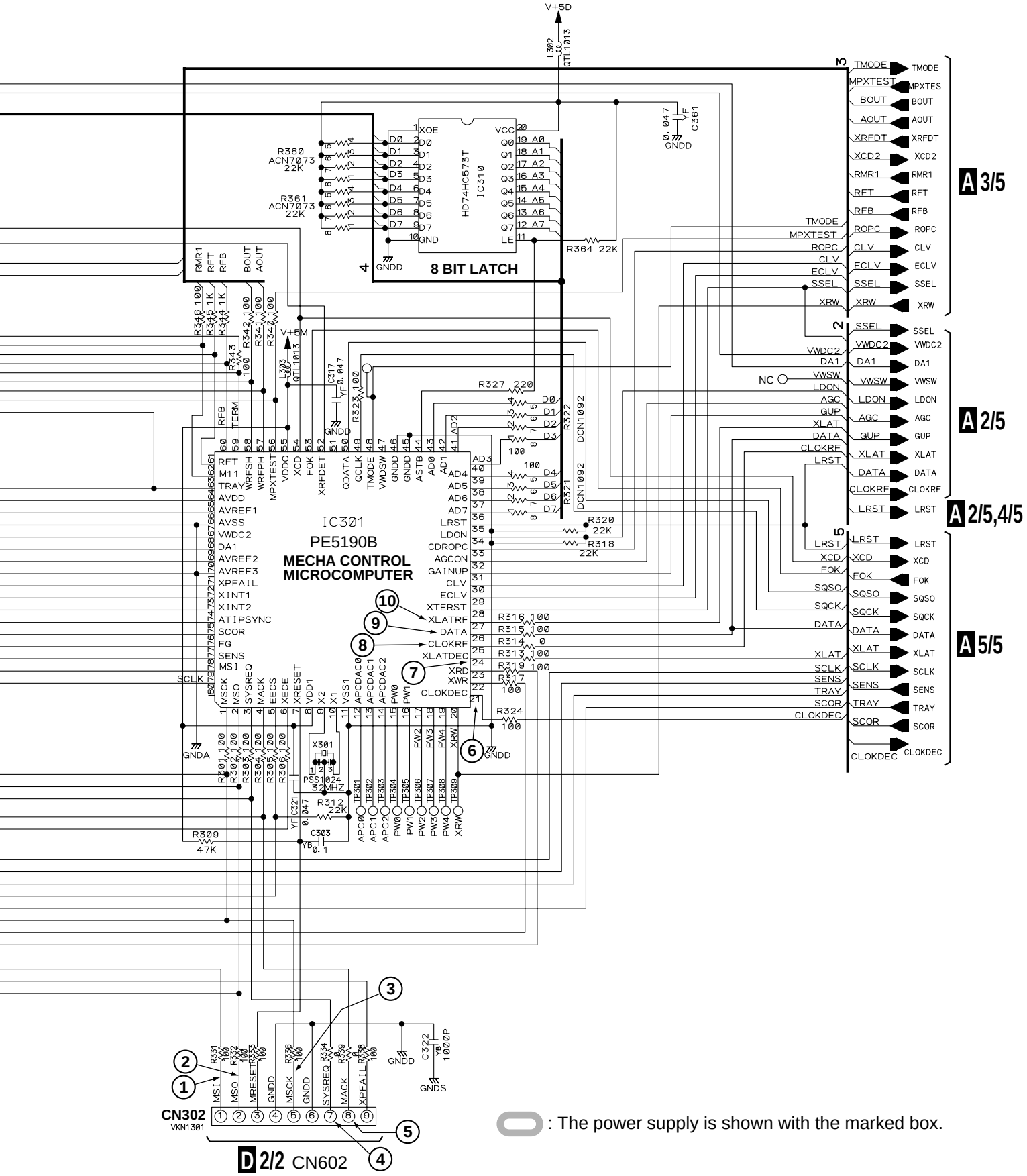
D (D 1/2- D 2/2)

AUDIO ASSY
(KU/CA : PWZ4098)
(WV, WY: PWZ4099)

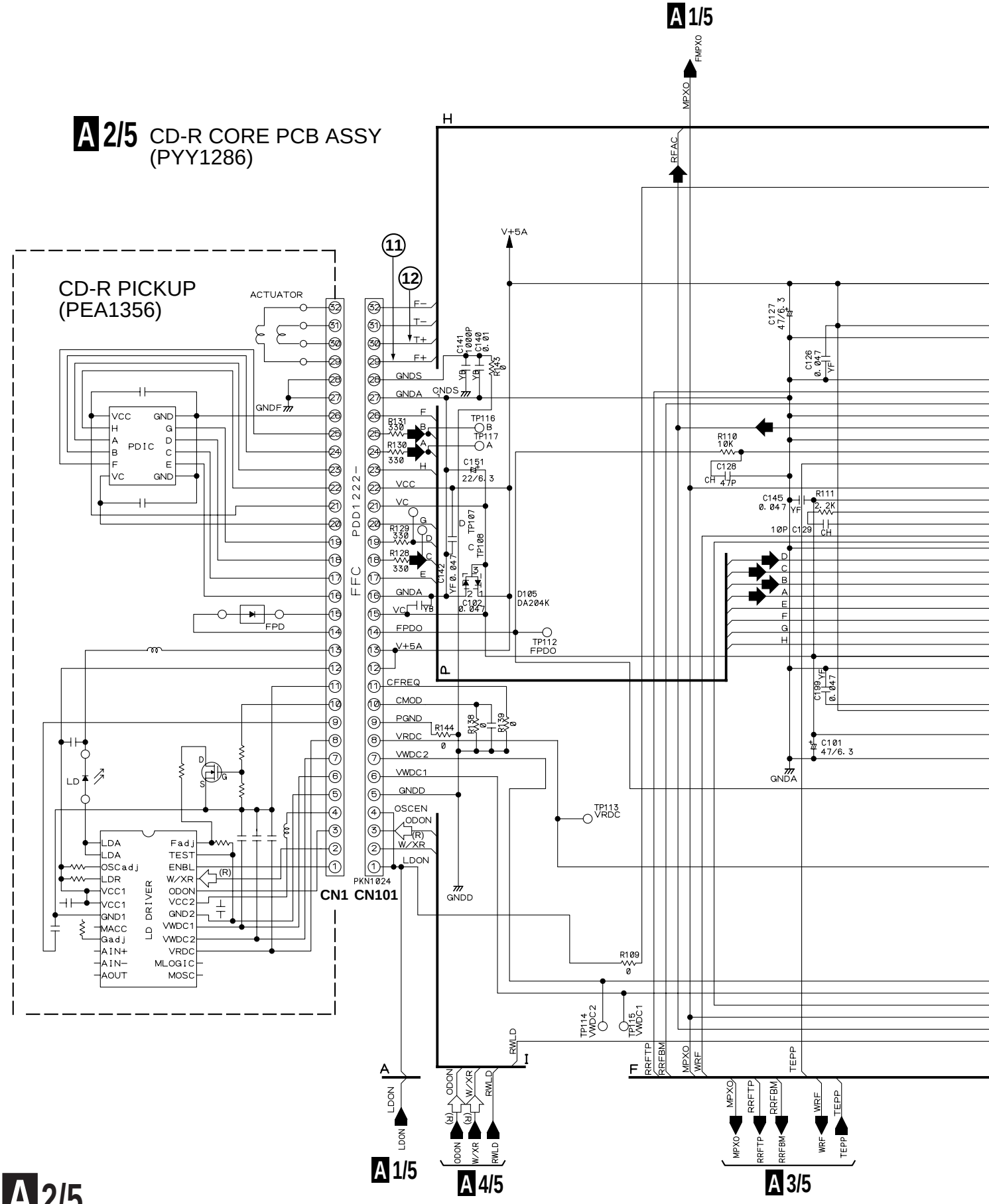


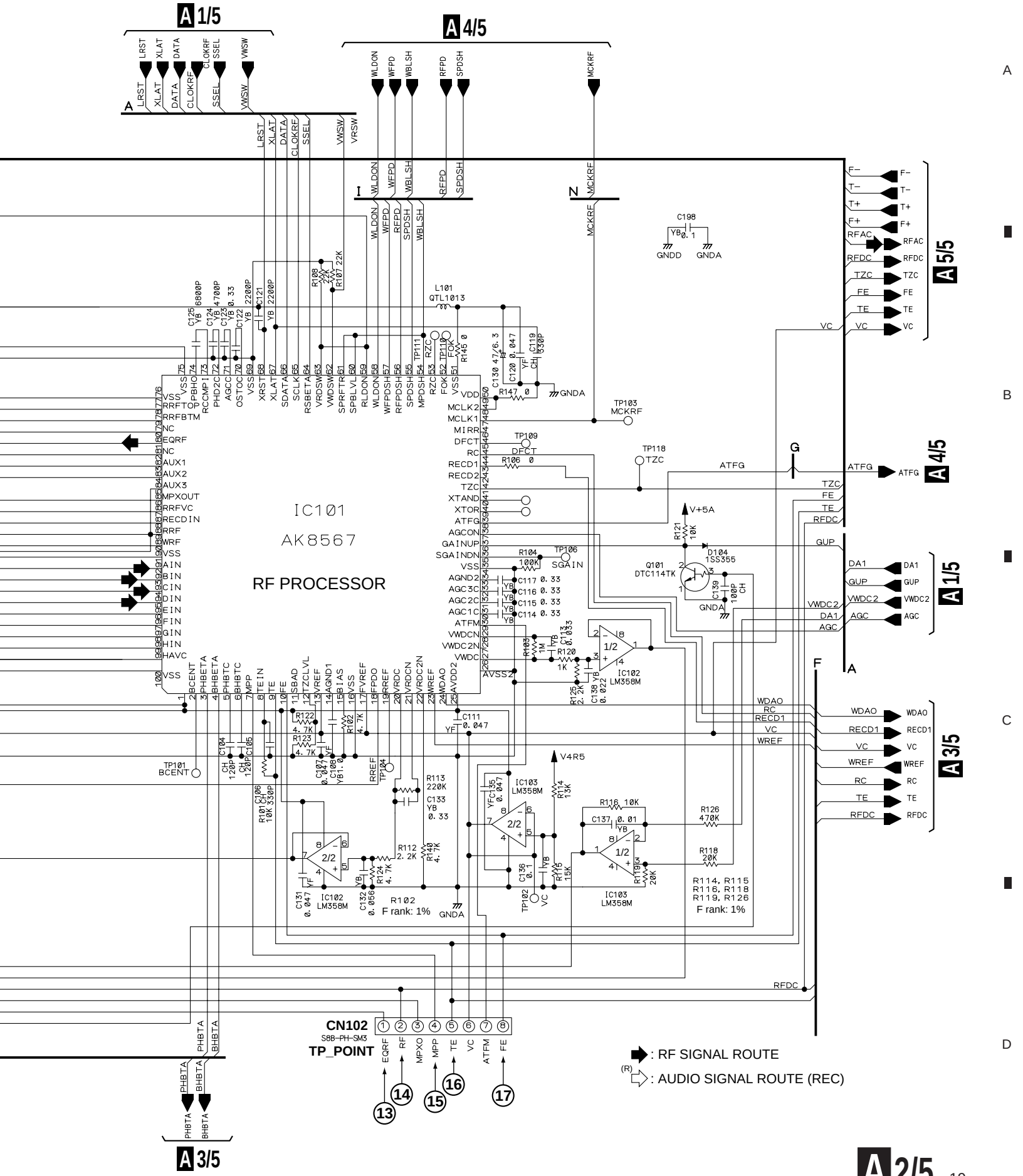
3.3 CD-R CORE PCB ASSY (1/5)




V+5D
L302 QTL1013
8 BIT LATCH
HD74HC573T
IC310
R360 ACN7073 22K
R361 ACN7073 22K
R364 22K
C361 0.047
GNDD
IC301
PE5190B
MECHA CONTROL MICROCOMPUTER
R320 22K
R318 22K
R327 220
R322 DCN1092
R321 DCN1092
R323 100
L303 QTL1013
C317 0.047
R316 100
R315 100
R314 0
R313 100
R319 100
R317 100
R324 100
X301 PS1024 32MHZ
R312 22K
C321 0.047
C303 0.1
R309 47K
CN302 VKN1301
C322 10000P
GNDA
GNDD
GNDS
D 2/2 CN602
A 3/5
A 2/5
A 2/5,4/5
A 5/5
A 1/5
: The power supply is shown with the marked box.

3.4 CD-R CORE PCB ASSY (2/5)

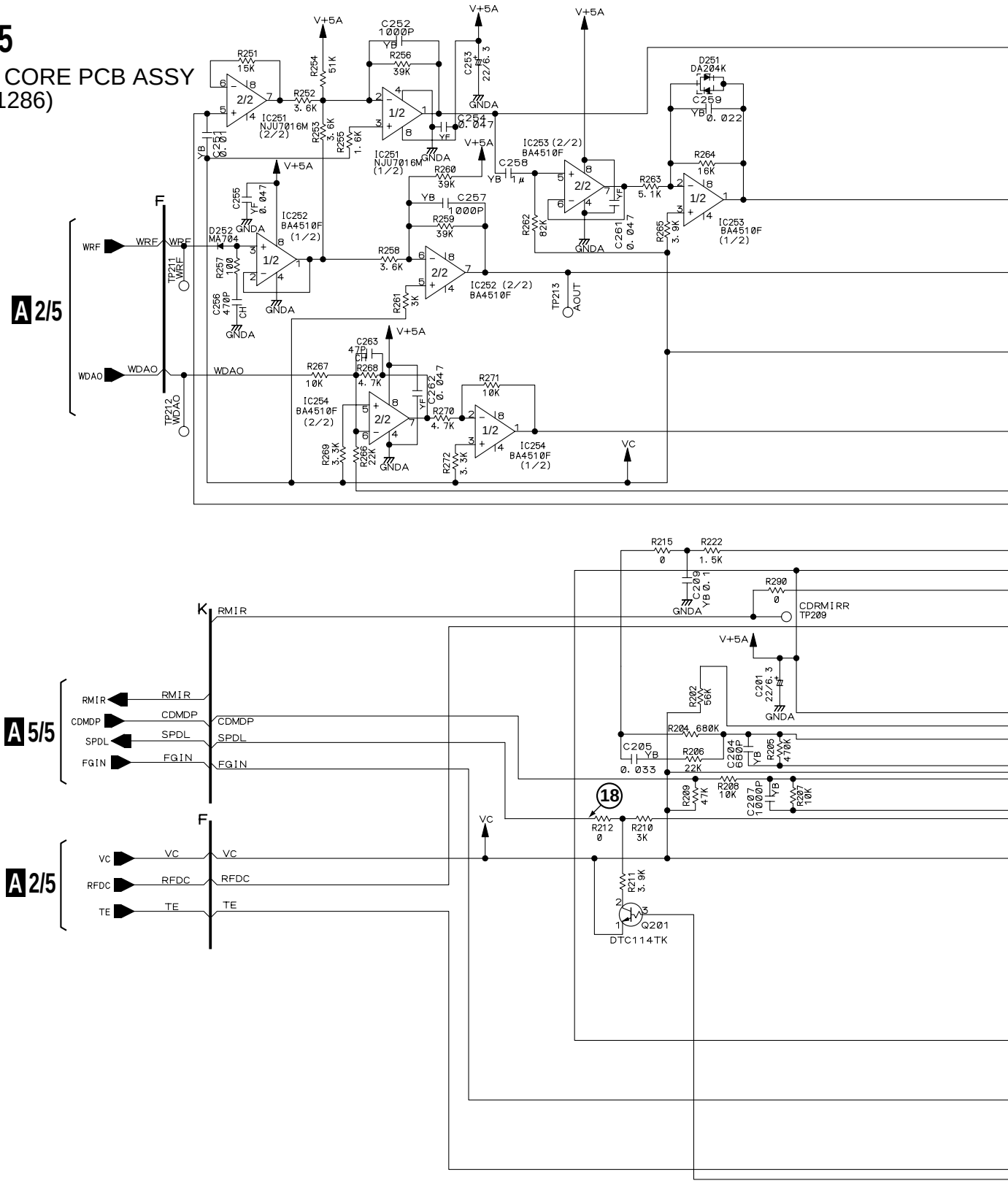


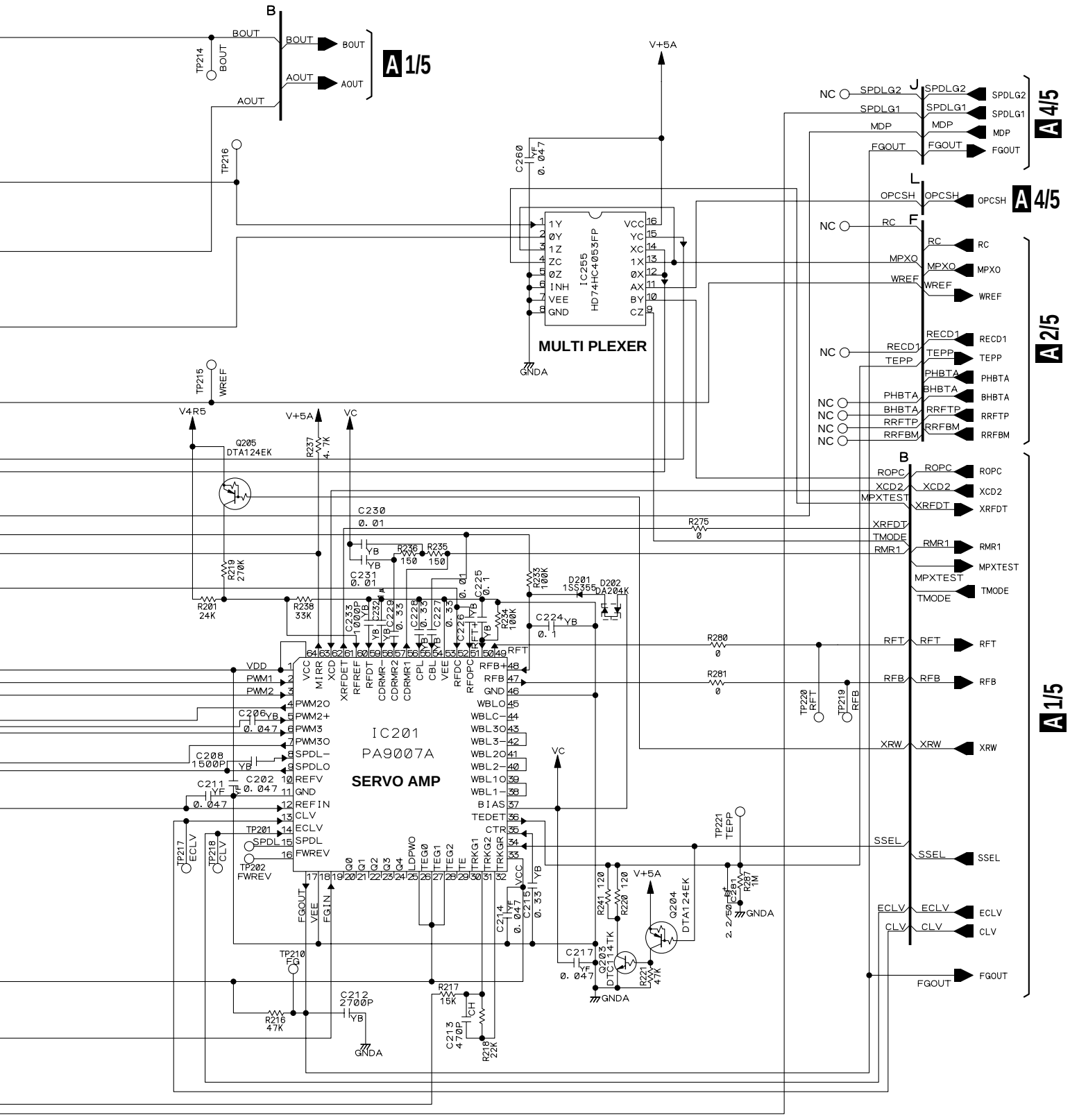

A 1/5
A 4/5
A 5/5
A 4/5
A 1/5
A 3/5
A 3/5
A 2/5
IC101
AK8567
RF PROCESSOR
CN102
S8B-PH-SM3
TP_POINT
: RF SIGNAL ROUTE
(R) : AUDIO SIGNAL ROUTE (REC)
R102
F rank: 1%
R114, R115
R116, R118
R119, R126
F rank: 1%
IC102
LM358M
IC103
LM358M
L101
QTL1013
Q101
DTC114TK
D104
1SS355
GNDA
GNDD
V+5A
V4R5

3.5 CD-R CORE PCB ASSY (3/5)

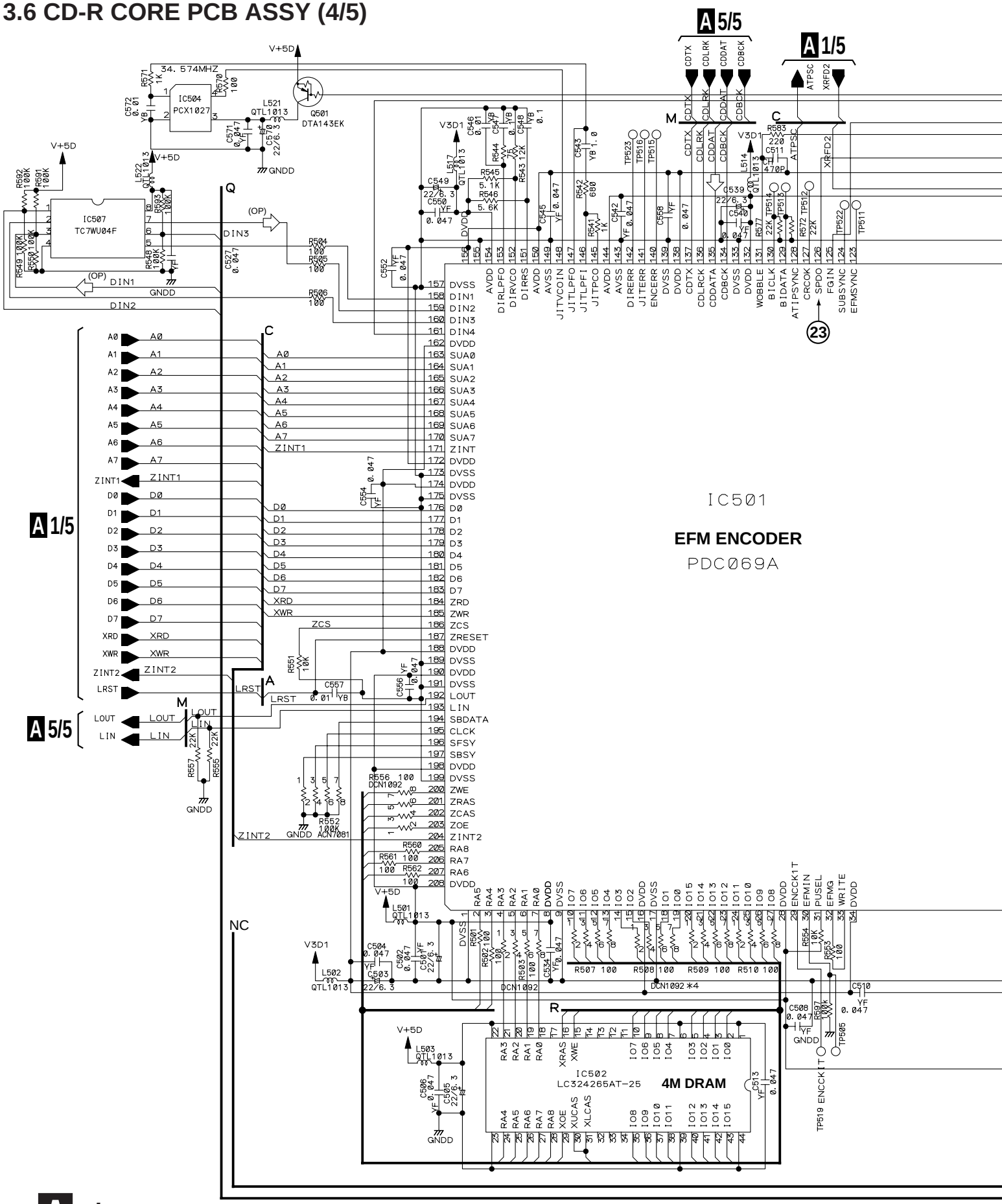
A 3/5

CD-R CORE PCB ASSY
(PYY1286)

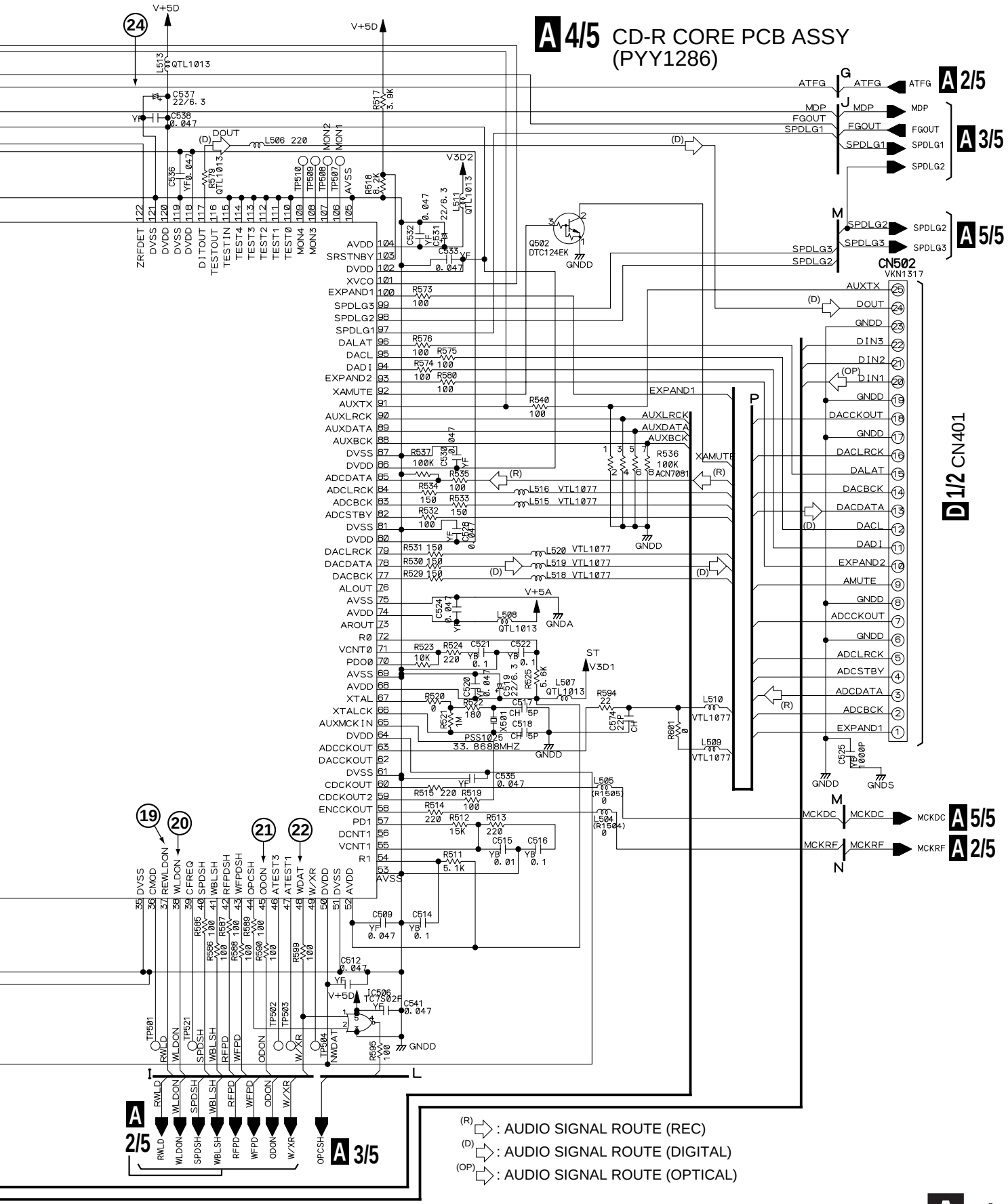



MULTI PLEXER
IC255
HD74HC4053FP
IC201
PA9007A
SERVO AMP
A 1/5
A 2/5
A 3/5
A 4/5
BOUT
AOUT
WREF
V+5A
V4R5
VC
GNDA
SPDLG2
SPDLG1
MDP
FGOUT
OPCSH
RC
MPXO
WREF
RECD1
TEPP
PHBTA
BHBTA
RRFTP
RRFBM
ROPC
XCD2
XRFDT
TMODE
RMR1
MPXTEST
RFT
RFB
XRW
SSEL
ECLV
CLV
FGOUT

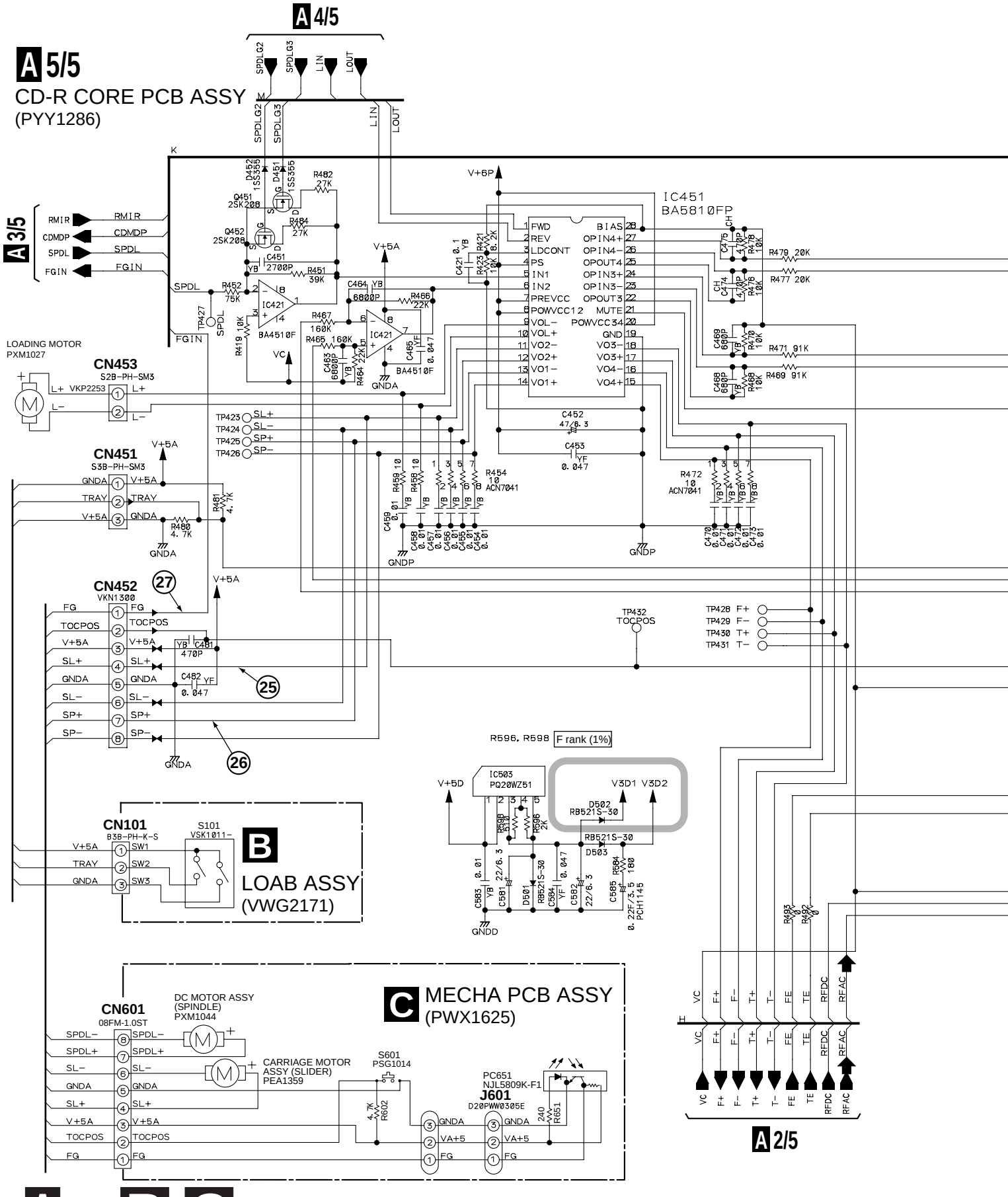
3.6 CD-R CORE PCB ASSY (4/5)

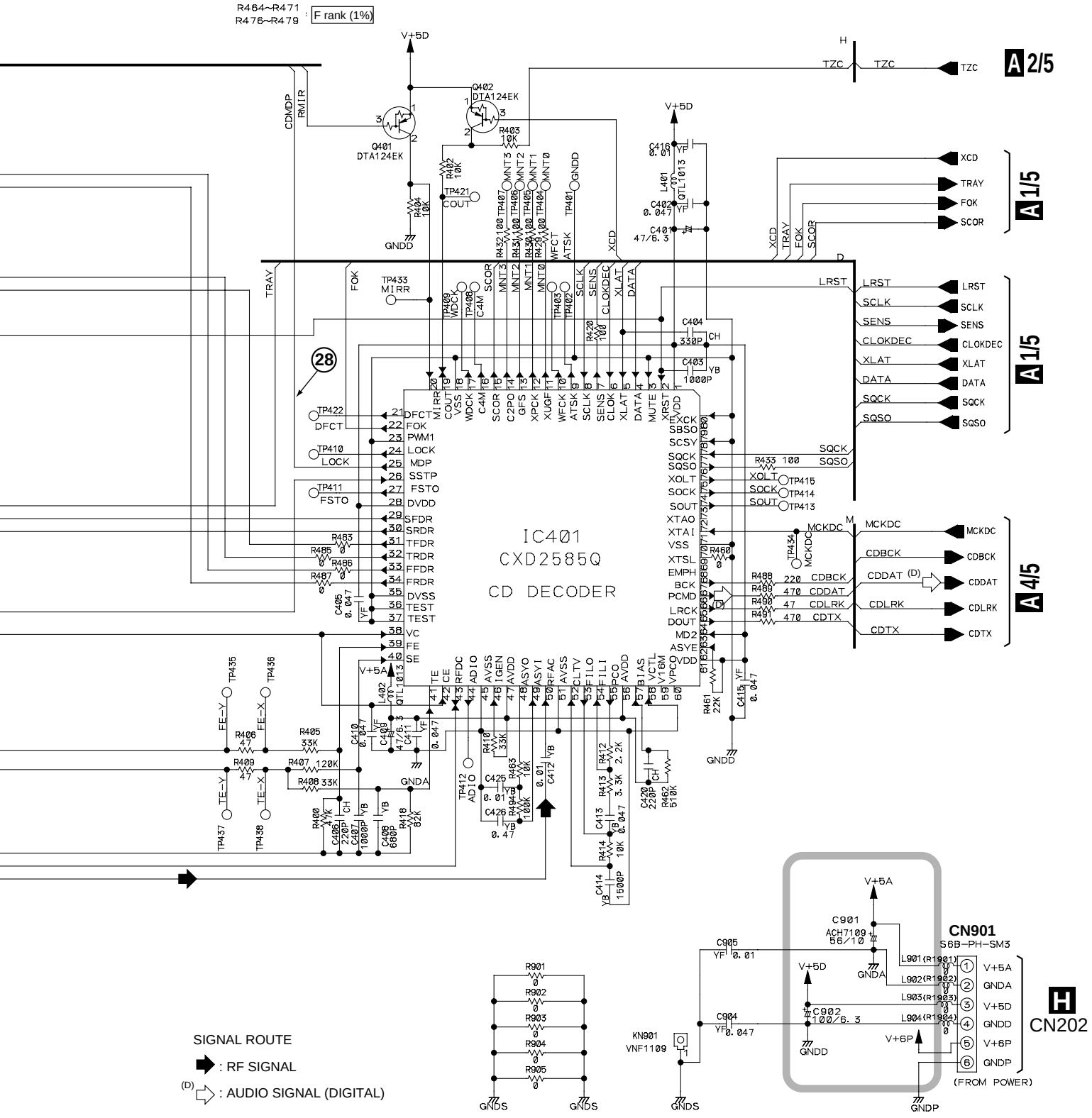


A 4/5 CD-R CORE PCB ASSY (PYY1286)



3.7 CD-R CORE PCB ASSY (5/5)




R464~R471
R476~R479 : F rank (1%)
IC401
CXD2585Q
CD DECODER
SIGNAL ROUTE
: RF SIGNAL
(D) : AUDIO SIGNAL (DIGITAL)
CN901
S6B-PH-SM3
CN202
(FROM POWER)
: The power supply is shown with the marked box.

■ VOLTAGES and WAVEFORMS

● Signal Logic

• Spindle System

A4/5 CD-R CORE PCB ASSY

Media	Pickup Position	SPDLG1 (IC501-pin97)	SPDLG3 (IC501-pin99)
CD	Inner	5V	0V
	Outer	0V	5V
CD-R CD-RW	12cm Inner	5V	0V
	12cm Outer	0V	5V
	8cm CD-R	0V	5V
	STOP	5V	5V

* Inner: Absolute time is less than 23 minutes.
Outer: Absolute time is more than 23 minutes.

A1/5 CD-R CORE PCB ASSY

Operating Mode	CLV (IC301-pin 30)	ECLV (IC301-pin 29)
STOP	0V	0V
CAV, W-CLV	5V	0V
E-CLV	5V	5V

* W-CLV: WOBBLECLV , E-CLV: EFMCLV

• Digital Input System

A4/5 CD-R CORE PCB ASSY

	at FS = 44.1 kHz	Others
XVCO (IC501-pin 101)	0V	5V

	at DIGITAL LOCK	at DIGITAL UNLOCK
DIRERR (IC501-pin 142)	0V	5V

• Audio System

A4/5 CD-R CORE PCB ASSY

	A/D Converter used	
	at Analog REC Pause, REC, Monitor	Others
ADCSTBY (CN502-pin 4)	5V	0V

	at MUTE ON (Audio Signal Not Output)	at MUTE OFF (Audio Signal Output)
AMUTE (CN502-pin 9)	5V	0V

• Others

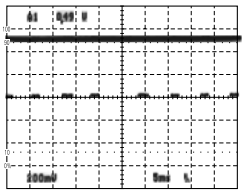
A1/5 CD-R CORE PCB ASSY

XPFAIL (CN302-pin 9)	5V

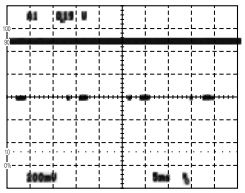
Note :
The encircled numbers denote measuring point in the schematic diagram.

A1/5 CD-R CORE PCB ASSY

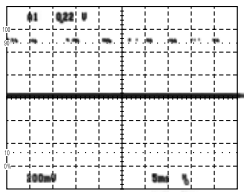
1 **CN302 - pin 1 (MSI)**
V: 200mV/div. , H: 5msec/div.



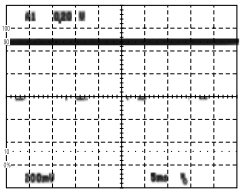
6 **IC301 - pin 21 (CLOCKDEC)**
V: 200mV/div. , H: 5msec/div.



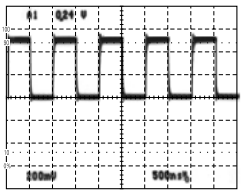
2 **CN302 - pin 2 (MSO)**
V: 200mV/div. , H: 5msec/div.



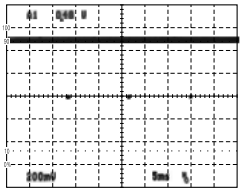
7 **IC301 - pin 24 (XLATDEC)**
V: 200mV/div. , H: 5msec/div.



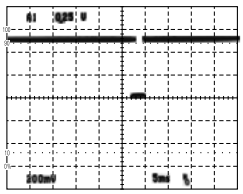
3 **CN302 - pin 5 (MSCK)**
V: 200mV/div. , H: 500nsec/div.
(PLAY)



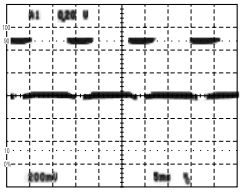
8 **IC301 - pin 25 (CLOCKRF)**
V: 200mV/div. H: 5msec/div.



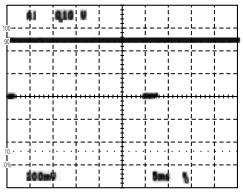
4 **CN302 - pin 7 (SYSREQ)**
V: 200mV/div. , H: 5msec/div.



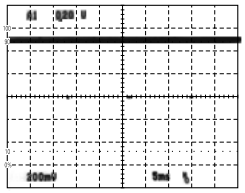
9 **IC301 - pin 26 (DATA)**
V: 200mV/div. , H: 5msec/div.



5 **CN302 - pin 8 (MACK)**
V: 200mV/div. , H: 5msec/div.



10 **IC301 - pin 27 (XLATRF)**
V: 200mV/div. , H: 5msec/div.



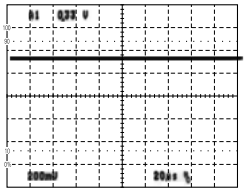
A 2/5 CD-R CORE PCB ASSY

A 4/5 CD-R CORE PCB ASSY

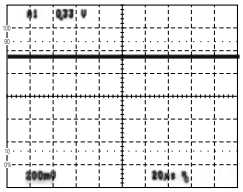
A 5/5 CD-R CORE PCB ASSY

A 3/5 CD-R CORE PCB ASSY

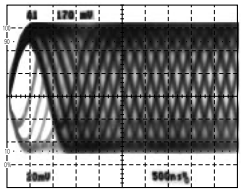
(11) CN101 - pin 29 (F+)
V: 200mV/div. , H: 20µsec/div.



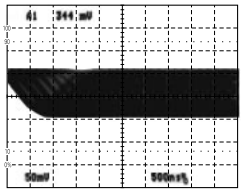
(12) CN101 - pin 30 (T+)
V: 200mV/div. , H: 20µsec/div.



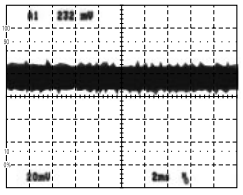
(13) CN102 - pin 1 (EQRF)
V: 20mV/div. , H: 500nsec/div.
(PLAY)



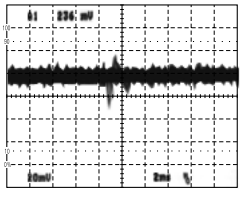
(14) CN102 - pin 2 (RF)
V: 50mV/div. , H: 500nsec/div.
(PLAY)



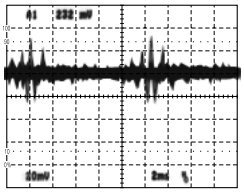
(15) CN102 - pin 4 (MPP)
V: 20mV/div. , H: 2msec/div.
(PLAY)



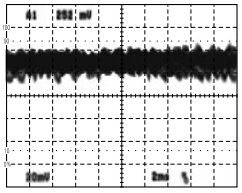
(16) CN102 - pin 5 (TE)
V: 20mV/div. , H: 2msec/div.
(PLAY)



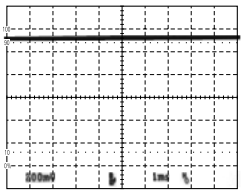
(17) CN102-pin 8 (FE)
V: 20mV/div. , H: 2msec/div.
(PLAY)



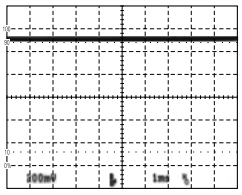
(18) Foot of R212 (SPDL)
V: 20mV/div. , H: 2msec/div.
(PLAY)



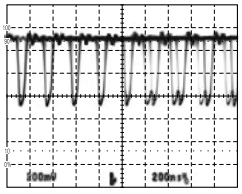
(19) IC501 - pin 37 (REWLDON)
V: 200mV/div. , H: 1msec/div.
(REC) RW



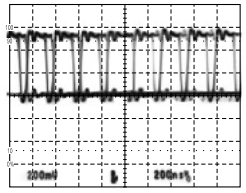
(20) IC501 - pin 38 (WLDON)
V: 200mV/div. , H: 1msec/div.
(REC)



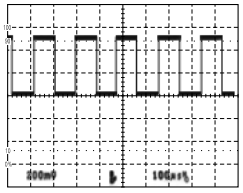
(21) IC501 - pin 45 (ODON)
V: 200mV/div. , H: 200nsec/div.
(REC)



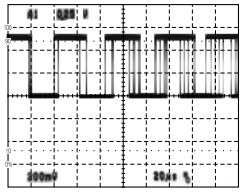
(22) IC501 - pin 48 (WDAT)
V: 200mV/div. , H: 200nsec/div.
(REC)



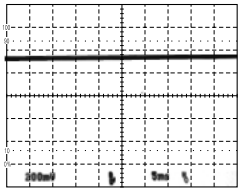
(23) IC501 - pin 126 (SPDO)
V: 200mV/div. , H: 100µsec/div.
(REC)



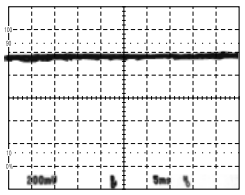
(24) Foot of R583 (ATFG)
V: 200mV/div. , H: 20µsec/div.
(REC)



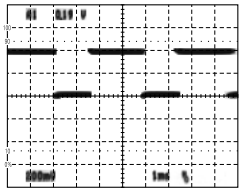
(25) CN452 - pin 4 (SL+)
V: 200mV/div. , H: 5msec/div.
(PLAY)



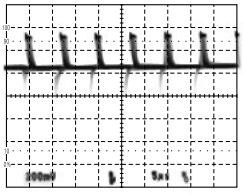
(26) CN452 - pin 7 (SP+)
V: 200mV/div. , H: 5msec/div.
(PLAY)



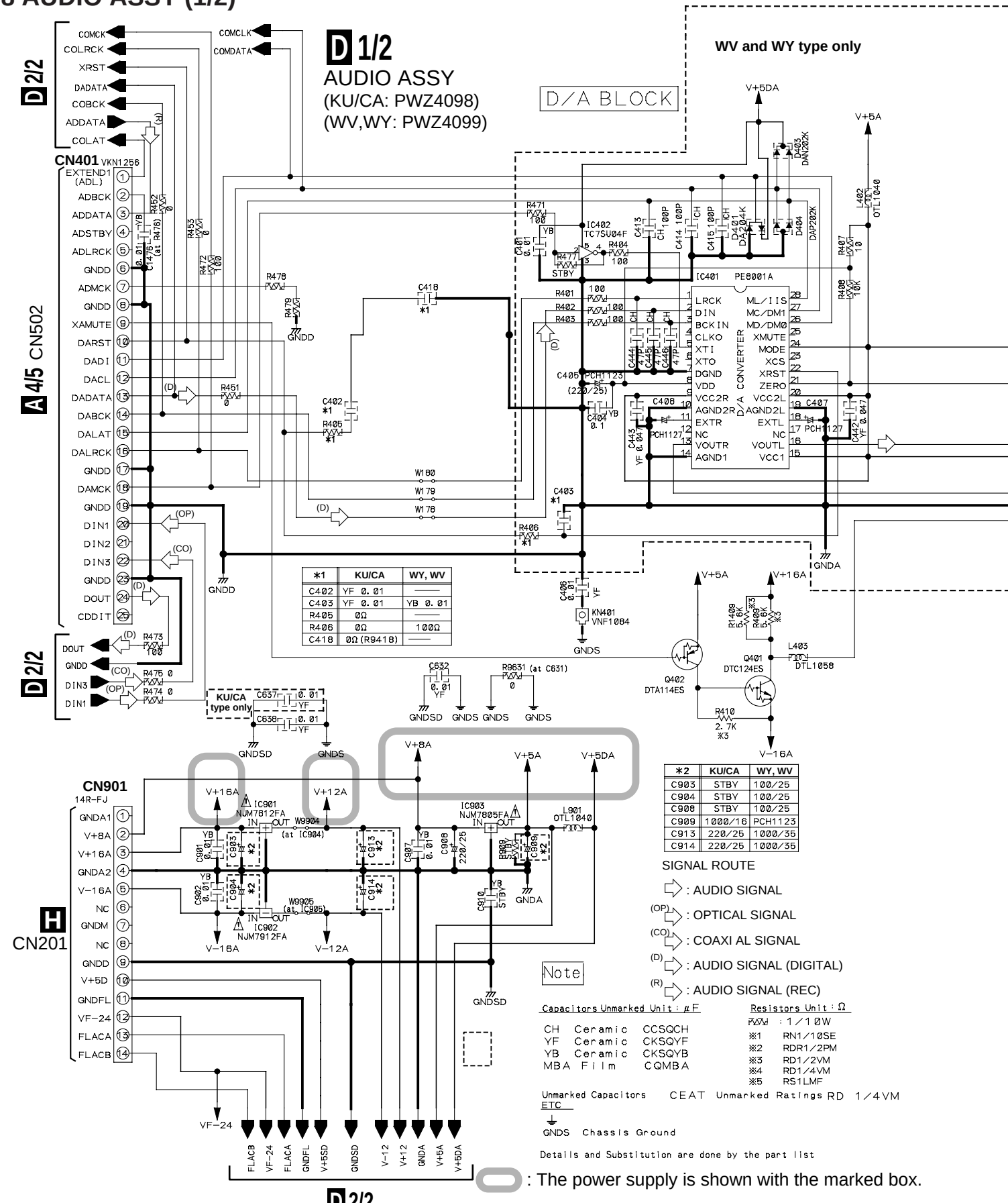
(27) CN452 - pin 1 (FG)
V: 200mV/div. , H: 1msec/div.
(PLAY)



(28) IC401 - pin 25 (MDP)
V: 200mV/div. , H: 5µsec/div.
(PLAY)



3.8 AUDIO ASSY (1/2)



*1	KU/CA	WY, WV
C402	YF 0.01	——
C403	YF 0.01	YB 0.01
R405	0Ω	——
R406	0Ω	100Ω
C418	0Ω (R9418)	——

*2	KU/CA	WY, WV
C903	STBY	100/25
C904	STBY	100/25
C908	STBY	100/25
C909	1000/16	PCH1123
C913	220/25	1000/35
C914	220/25	1000/35

SIGNAL ROUTE

: AUDIO SIGNAL

(OP) : OPTICAL SIGNAL

(CO) : COAXI AL SIGNAL

(D) : AUDIO SIGNAL (DIGITAL)

(R) : AUDIO SIGNAL (REC)

Note

Capacitors Unmarked Unit : μF

CH Ceramic CCSQCH
YF Ceramic CKSQYF
YB Ceramic CKSQYB
MBA Film CQMBA

Resistors Unit : Ω

: 1/10W
※1 RN1/10SE
※2 RDR1/2PM
※3 RD1/2VM
※4 RD1/4VM
※5 RS1LMF

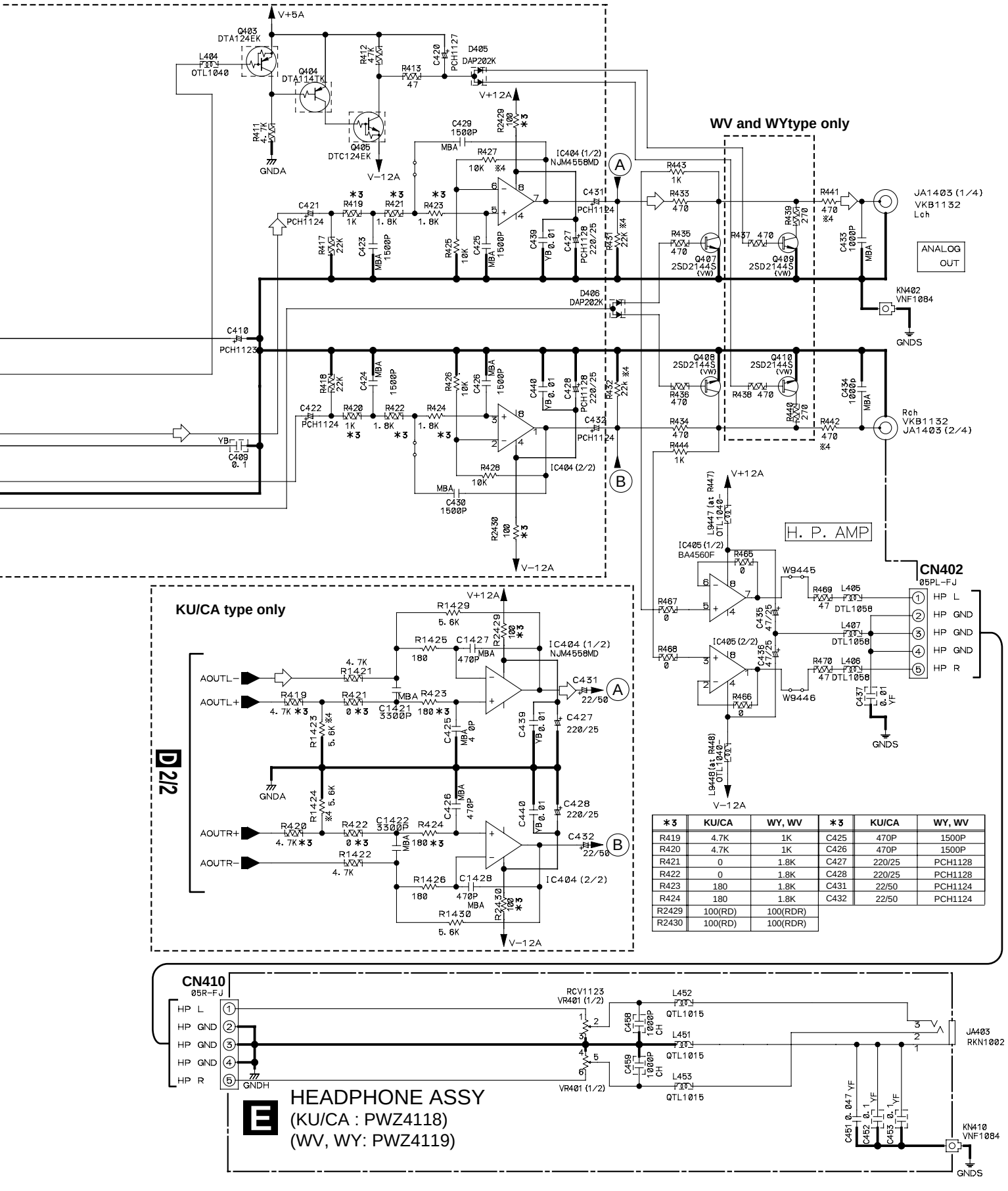
Unmarked Capacitors CEAT Unmarked Ratings RD 1/4VM

ETC

GNDS Chassis Ground

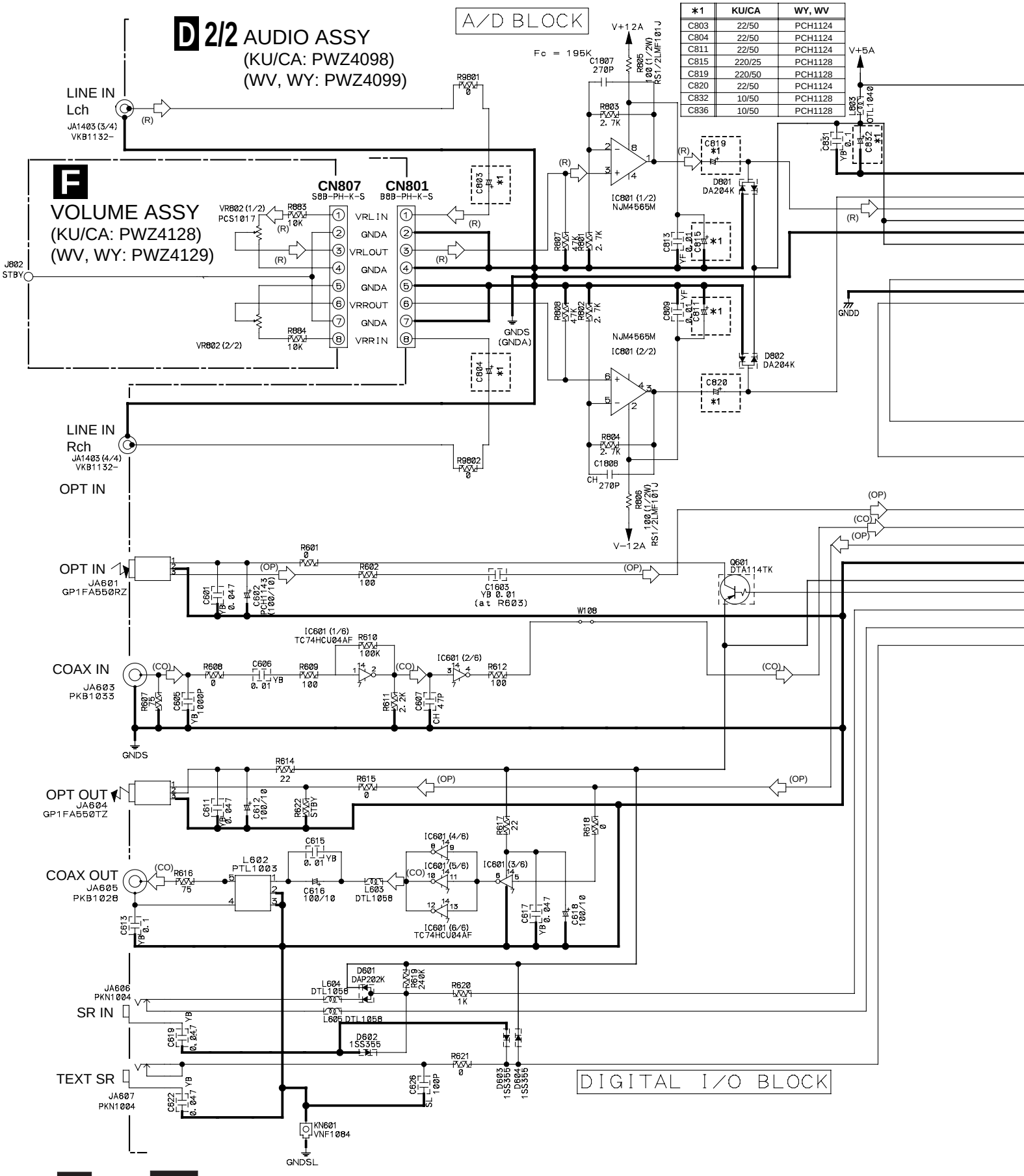
Details and Substitution are done by the part list

: The power supply is shown with the marked box.

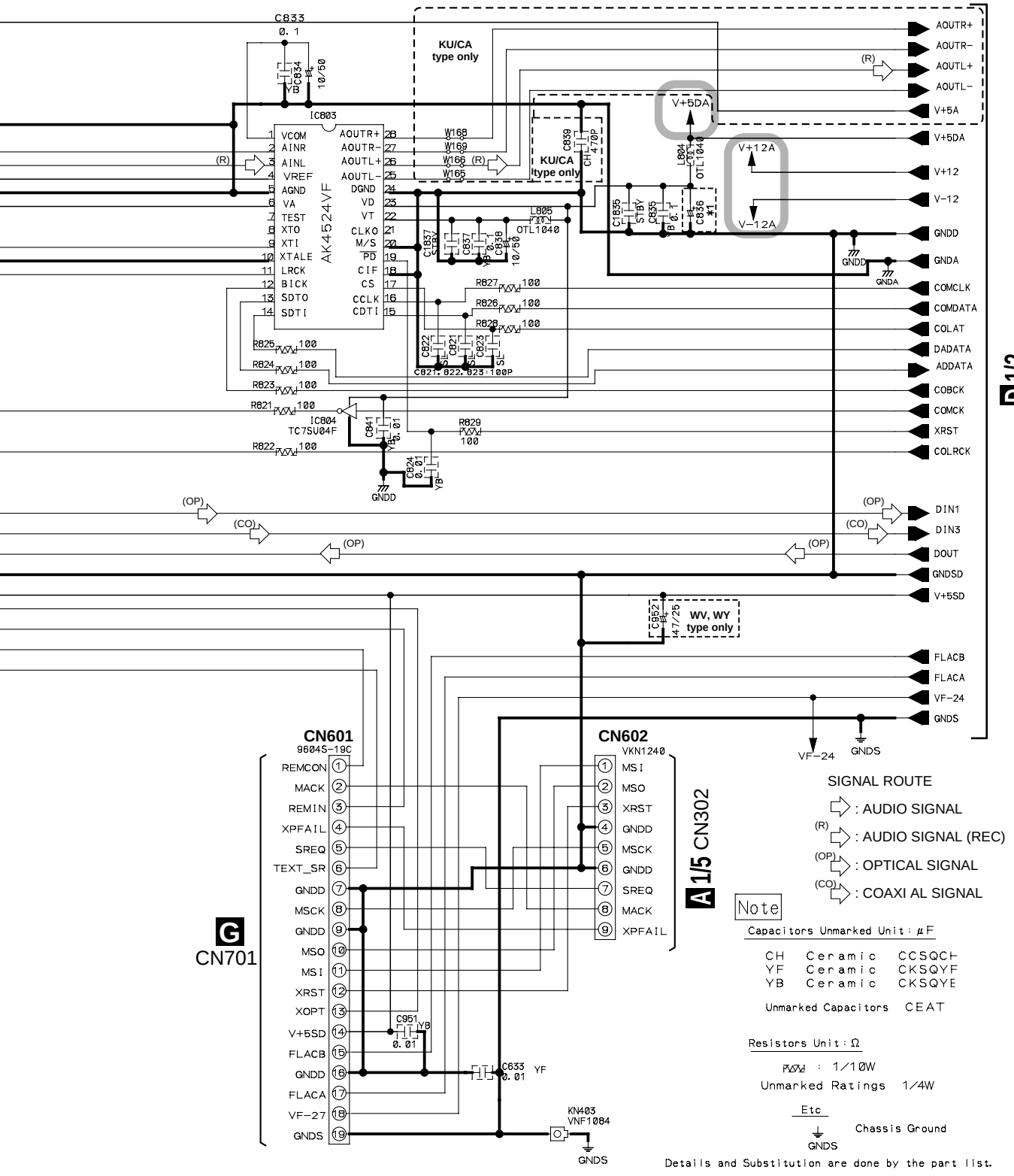


✻3	KU/CA	WY, WV	✻3	KU/CA	WY, WV
R419	4.7K	1K	C425	470P	1500P
R420	4.7K	1K	C426	470P	1500P
R421	0	1.8K	C427	220/25	PCH1128
R422	0	1.8K	C428	220/25	PCH1128
R423	180	1.8K	C431	22/50	PCH1124
R424	180	1.8K	C432	22/50	PCH1124
R2429	100(RD)	100(RDR)			
R2430	100(RD)	100(RDR)			

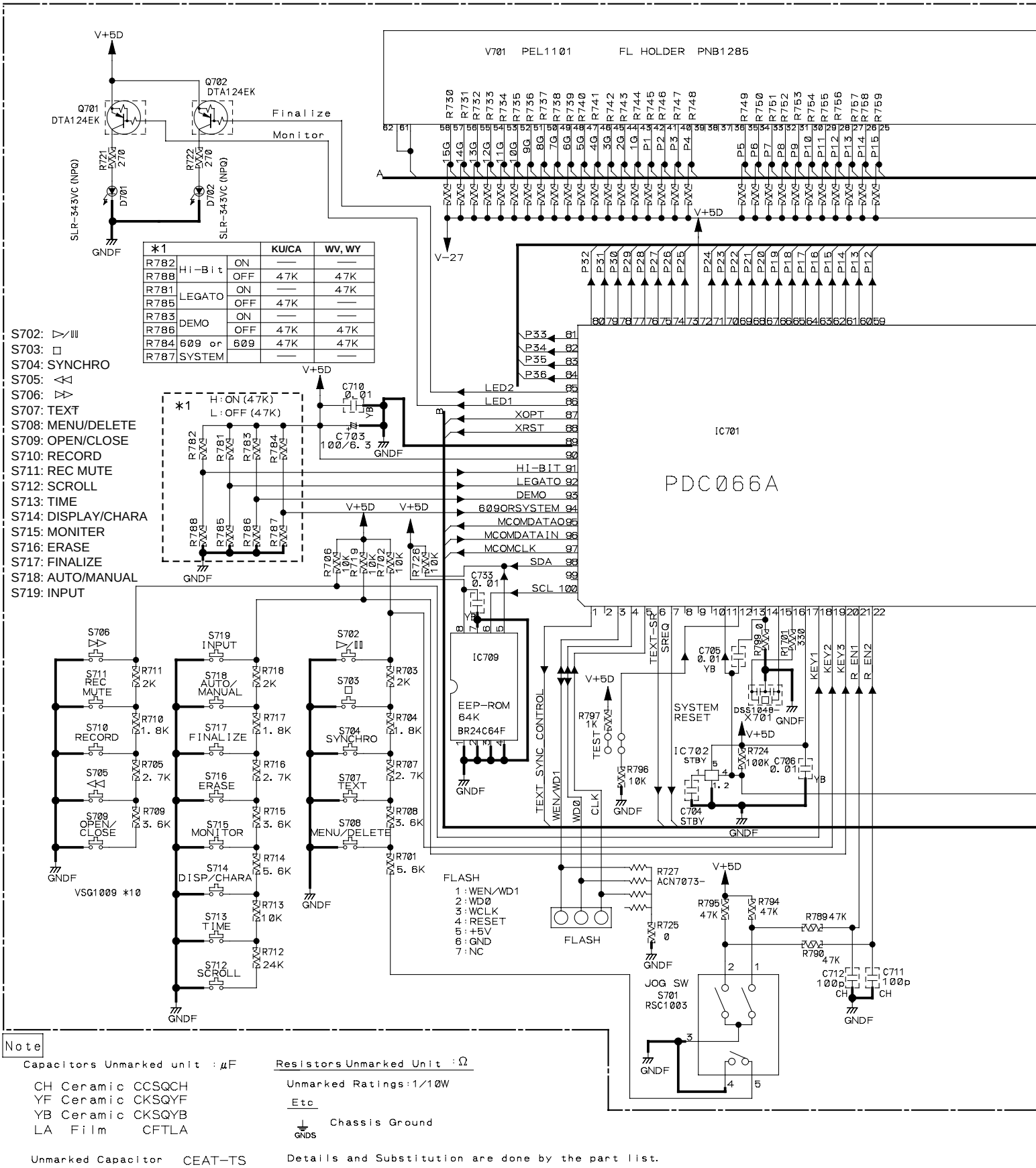
3.9 AUDIO ASSY (2/2)



*1	KU/CA	WY, WV
C803	22/50	PCH1124
C804	22/50	PCH1124
C811	22/50	PCH1124
C815	220/25	PCH1128
C819	220/50	PCH1128
C820	22/50	PCH1124
C832	10/50	PCH1128
C836	10/50	PCH1128


C833
0.1
C834
10/50
IC803
AK4524VF
VCOM
AINR
AINL
VREF
AGND
VA
TEST
XTO
XTI
XTALE
LRCK
BICK
SDTO
SDTI
AOUTR+
AOUTR-
AOUTL+
AOUTL-
DGND
VD
VT
CLKO
M/S
PD
CIF
CS
CCLK
CDTI
KU/CA type only
W168
W169
W166
W165
C839
CH 470P
L804
OTL1040
V+5DA
V+12A
V-12A
C835
C836
*1
L805
OTL1040
C837
C838
10/50
R827 100
R826 100
R828 100
R825 100
R824 100
R823 100
R821 100
R822 100
C822
C821
C823
C824: 822.823 100P
IC804
TC7SU04F
C841
R829 100
C824
0.01
GNDD
GNDA
AQUTR+
AQUTR-
AQUTL+
AQUTL-
V+5A
V+5DA
V+12
V-12
GNDD
GNDA
COMCLK
COMDATA
COLAT
DADATA
ADDATA
COBCK
COMCK
XRST
COLRCK
D 1/2
(OP)
(CO)
DIN1
DIN3
DOUT
GNDSD
V+5SD
C952
4.7/25
WV, WY type only
FLACB
FLACA
VF-24
GNDS
CN601
9604S-19C
REMCON
MACK
REMIN
XPFAIL
SREQ
TEXT_SR
GNDD
MSCK
GNDD
MSO
MSI
XRST
XOPT
V+5SD
FLACB
GNDD
FLACA
VF-27
GNDS
CN602
VKN1240
MSI
MSO
XRST
GNDD
MSCK
GNDD
SREQ
MACK
XPFAIL
A 1/5 CN302
G
CN701
C951
0.01
YB
C633
0.01
YF
KN403
VNF1084
GNDS
SIGNAL ROUTE
: AUDIO SIGNAL
(R) : AUDIO SIGNAL (REC)
(OP) : OPTICAL SIGNAL
(CO) : COAXI AL SIGNAL
Note
Capacitors Unmarked Unit : μF
CH Ceramic CCSQCH
YF Ceramic CKSQYF
YB Ceramic CKSQYE
Unmarked Capacitors CEAT
Resistors Unit : Ω
1/10W
Unmarked Ratings 1/4W
Etc
Chassis Ground
Details and Substitution are done by the part list.
: The power supply is shown with the marked box.

3.10 OPERATING ASSY



*1			KU/CA	WV, WY
R782	Hi-Bit	ON	—	—
R788		OFF	47K	47K
R781	LEGATO	ON	—	47K
R785		OFF	47K	—
R783	DEMO	ON	—	—
R786		OFF	47K	47K
R784	609 or	609	47K	47K
R787	SYSTEM		—	—

Note

Capacitors Unmarked unit : μF

CH Ceramic CCSQCH
YF Ceramic CKSQYF
YB Ceramic CKSQYB
LA Film CFTLA

Unmarked Capacitor CEAT-TS

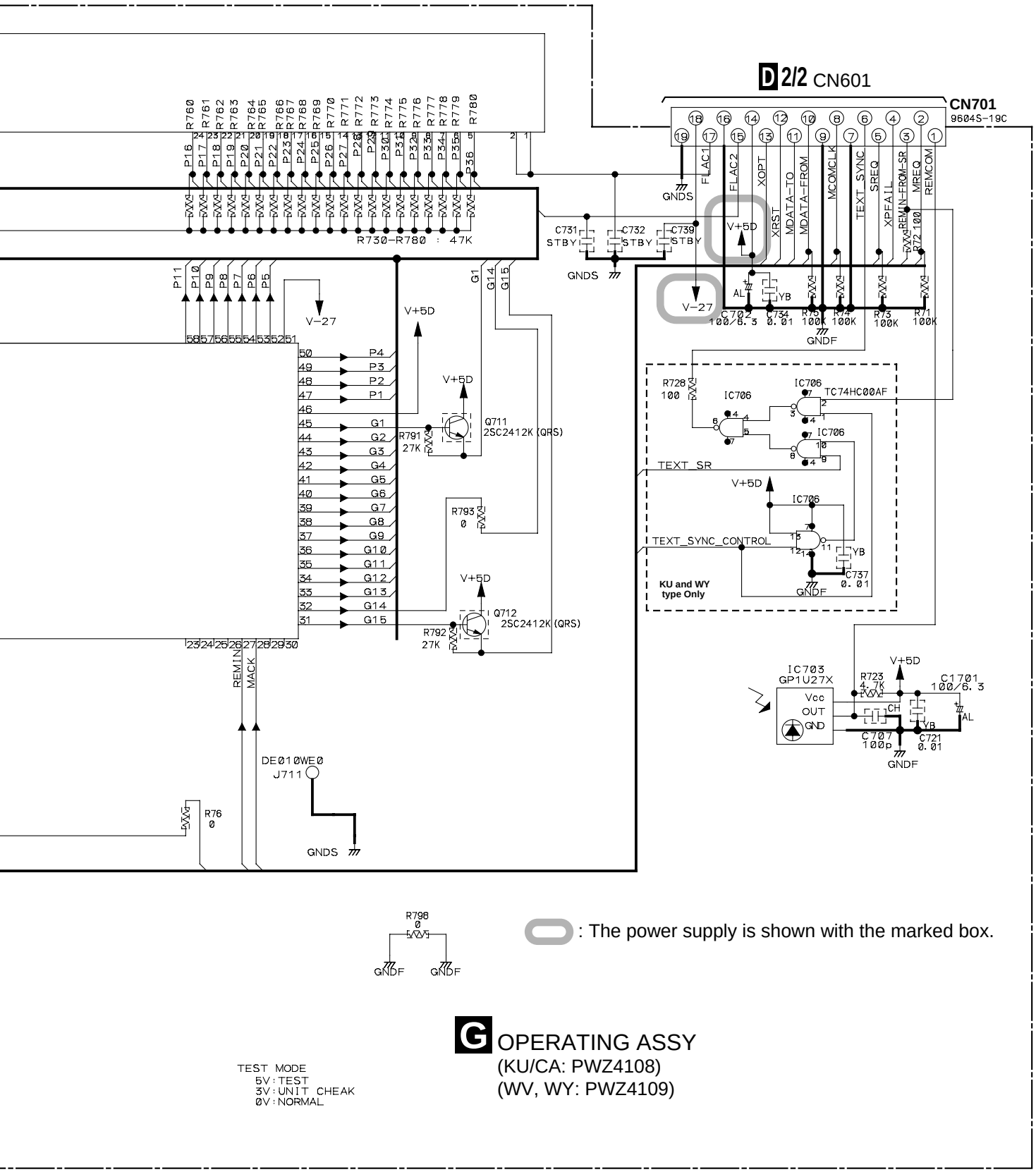
Resistors Unmarked Unit : Ω

Unmarked Ratings: 1/10W

Etc

GNDS Chassis Ground

Details and Substitution are done by the part list.

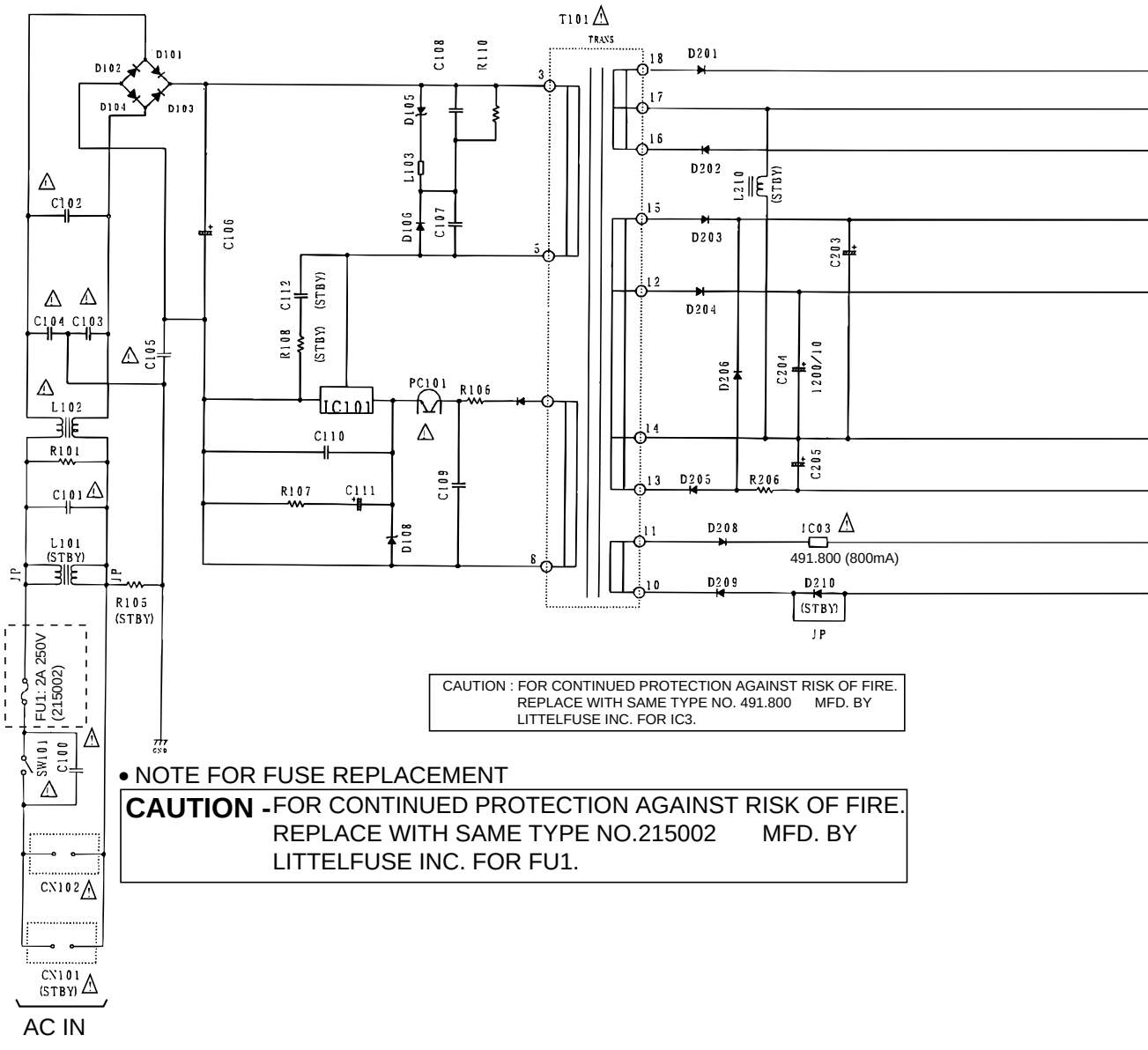


TEST MODE
5V : TEST
3V : UNIT CHEAK
0V : NORMAL

G OPERATING ASSY
(KU/CA: PWZ4108)
(WV, WY: PWZ4109)

3.11 POWER SUPPLY ASSY

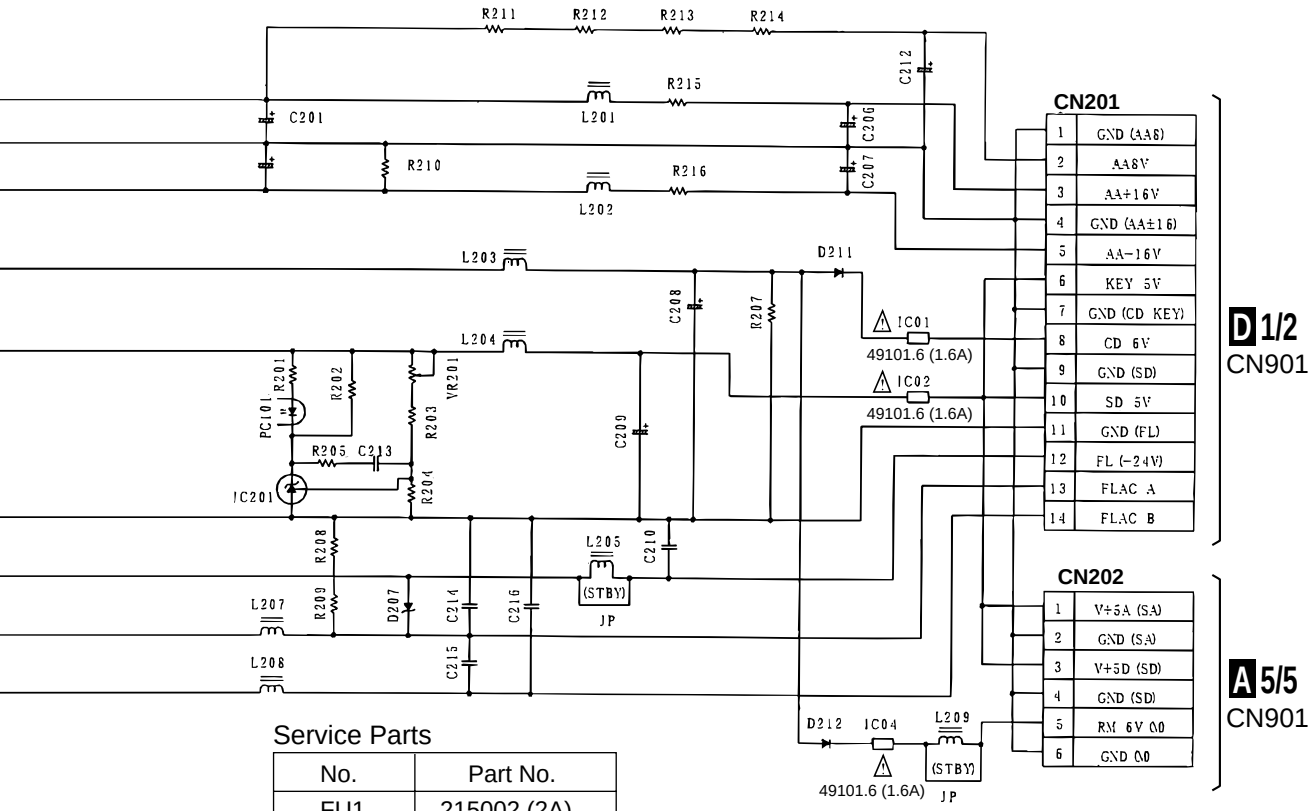
POWER SUPPLAY ASSY
(PWR1029)



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE WITH SAME TYPE NO. 491.800 MFD. BY
LITTELFUSE INC. FOR IC3.

• NOTE FOR FUSE REPLACEMENT

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE WITH SAME TYPE NO.215002 MFD. BY
LITTELFUSE INC. FOR FU1.



Service Parts

No.	Part No.
FU1	215002 (2A)
IC01	49101.6 (1.6A)
IC02	49101.6 (1.6A)
IC03	491.800 (0.8A)
IC04	49101.6 (1.6A)

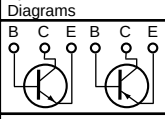
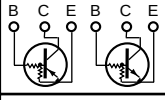
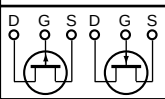
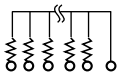
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE NO. 49101.6 MFD. BY LITTELFUSE INC. FOR IC1, IC2 and IC4 .

marked parts: Only these parts are supplied as service parts.

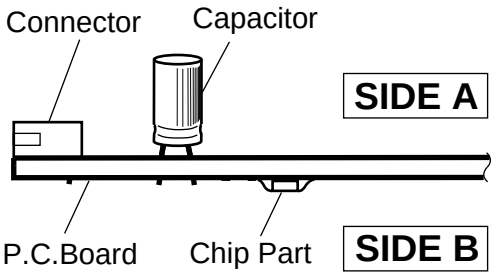
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

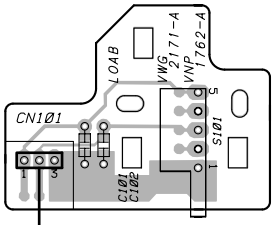


4.1 LOAB and MECHA PCB ASSYS

SIDE A

SIDE B

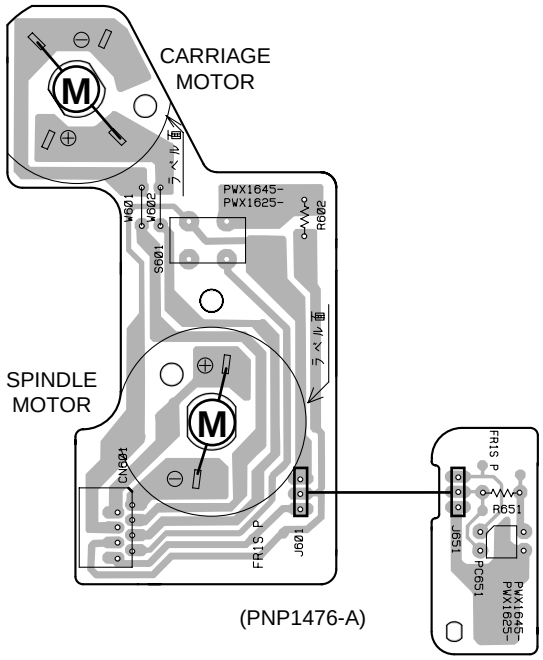
B LOAB ASSY



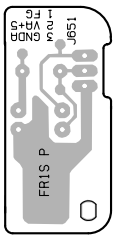
(VNP1762-A)

A CN451

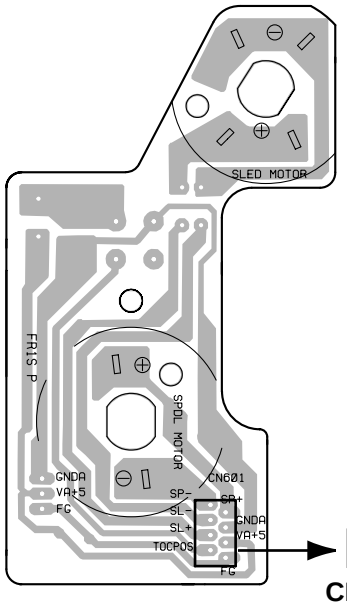
C MECHA PCB ASSY



(PNP1476-A)



C MECHA PCB ASSY



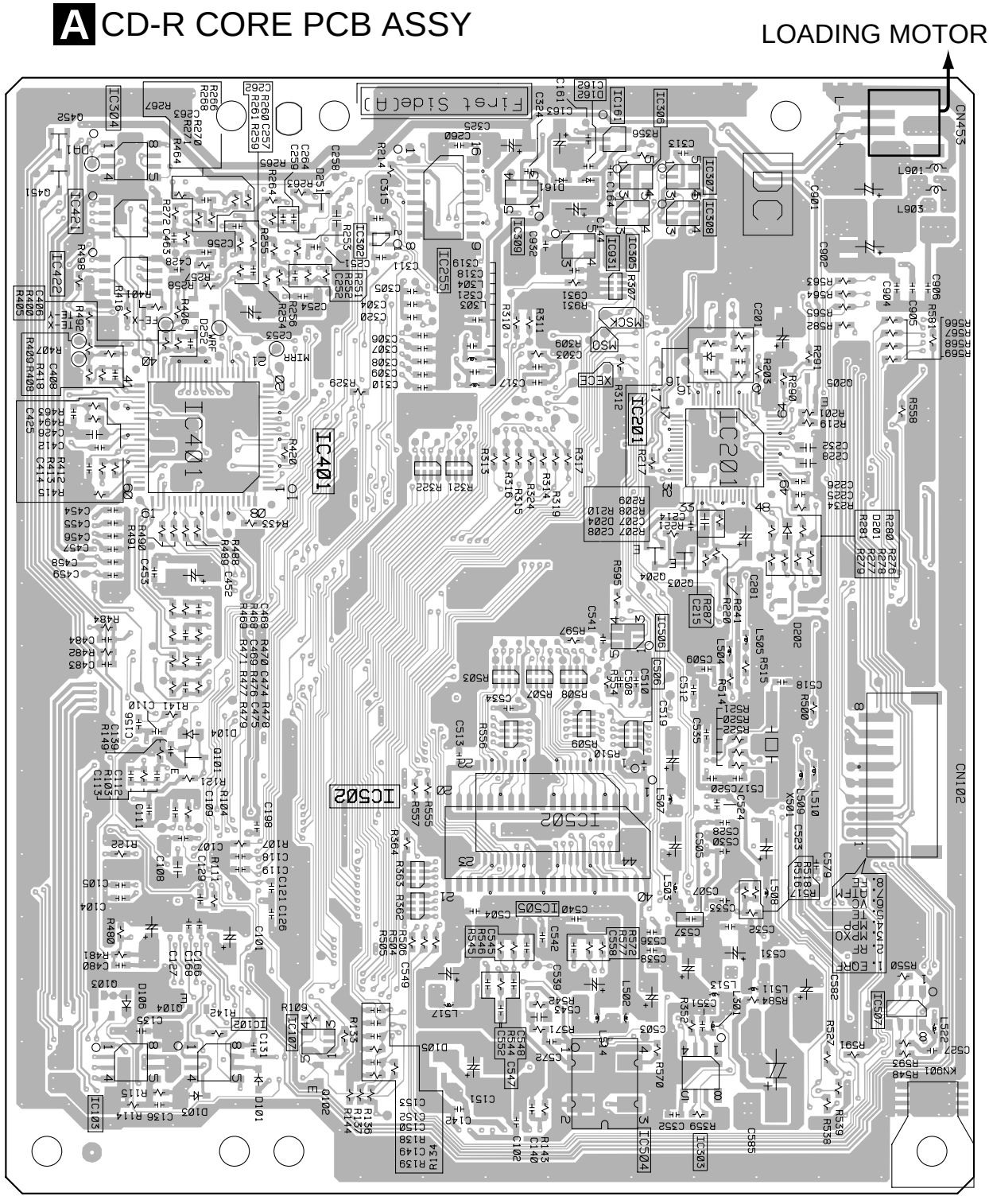
A CN452

(PNP1476-A)

4.2 CD-R CORE PCB ASSY

SIDE A

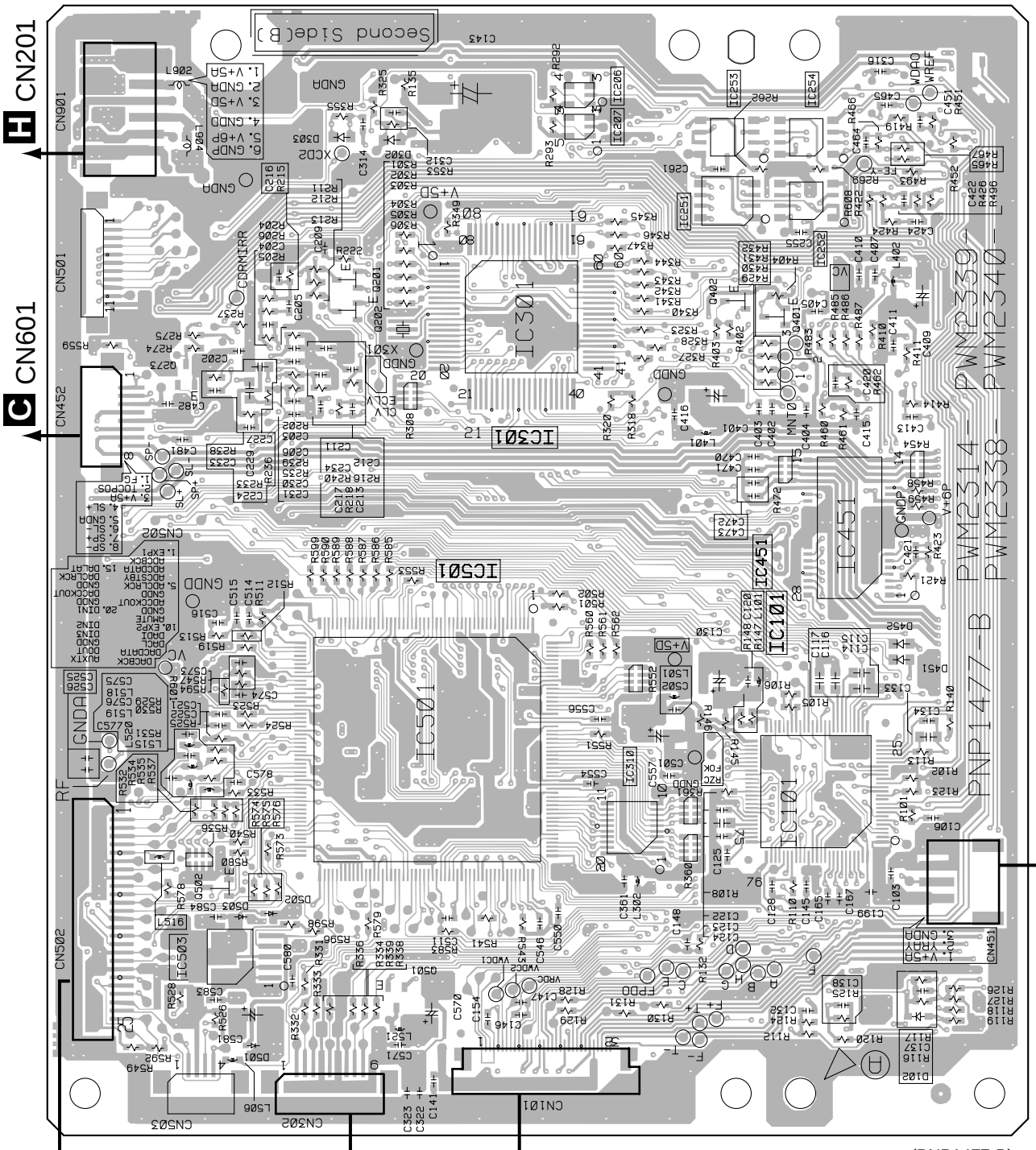
A CD-R CORE PCB ASSY



(PNP1477-B)

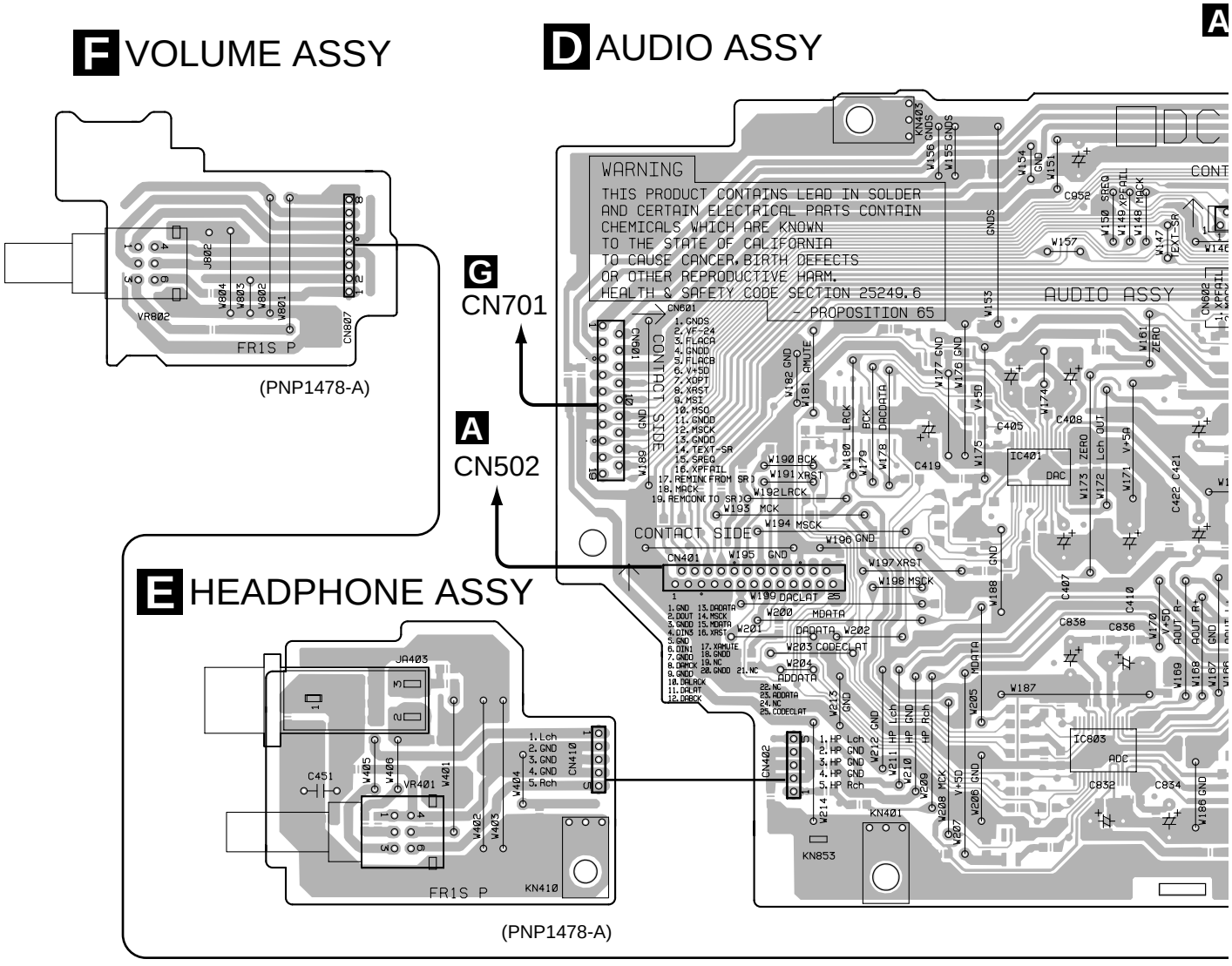
SIDE B

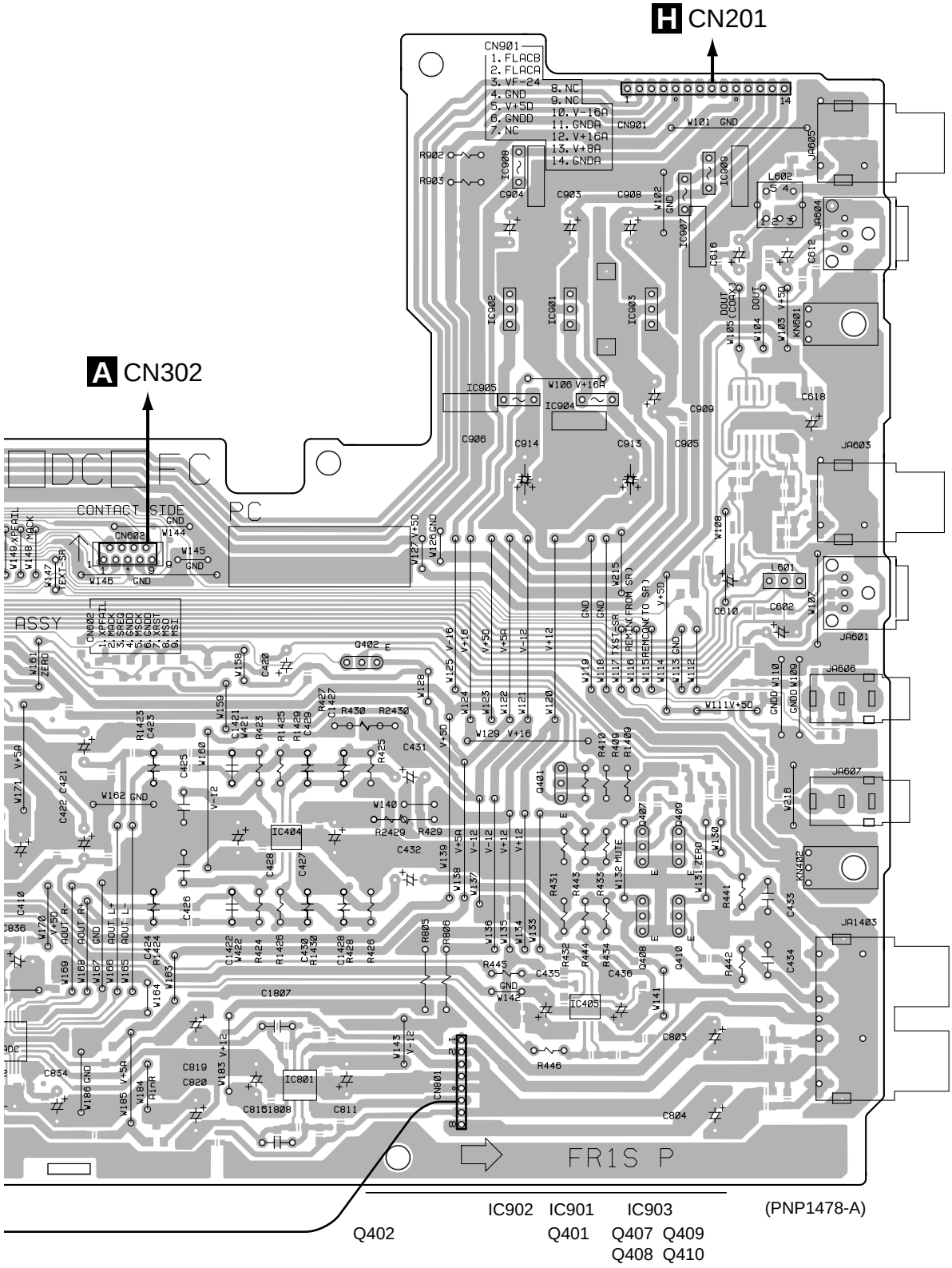
A CD-R CORE PCB ASSY



4.3 AUDIO, HEADPHONE and VOLUME ASSYS

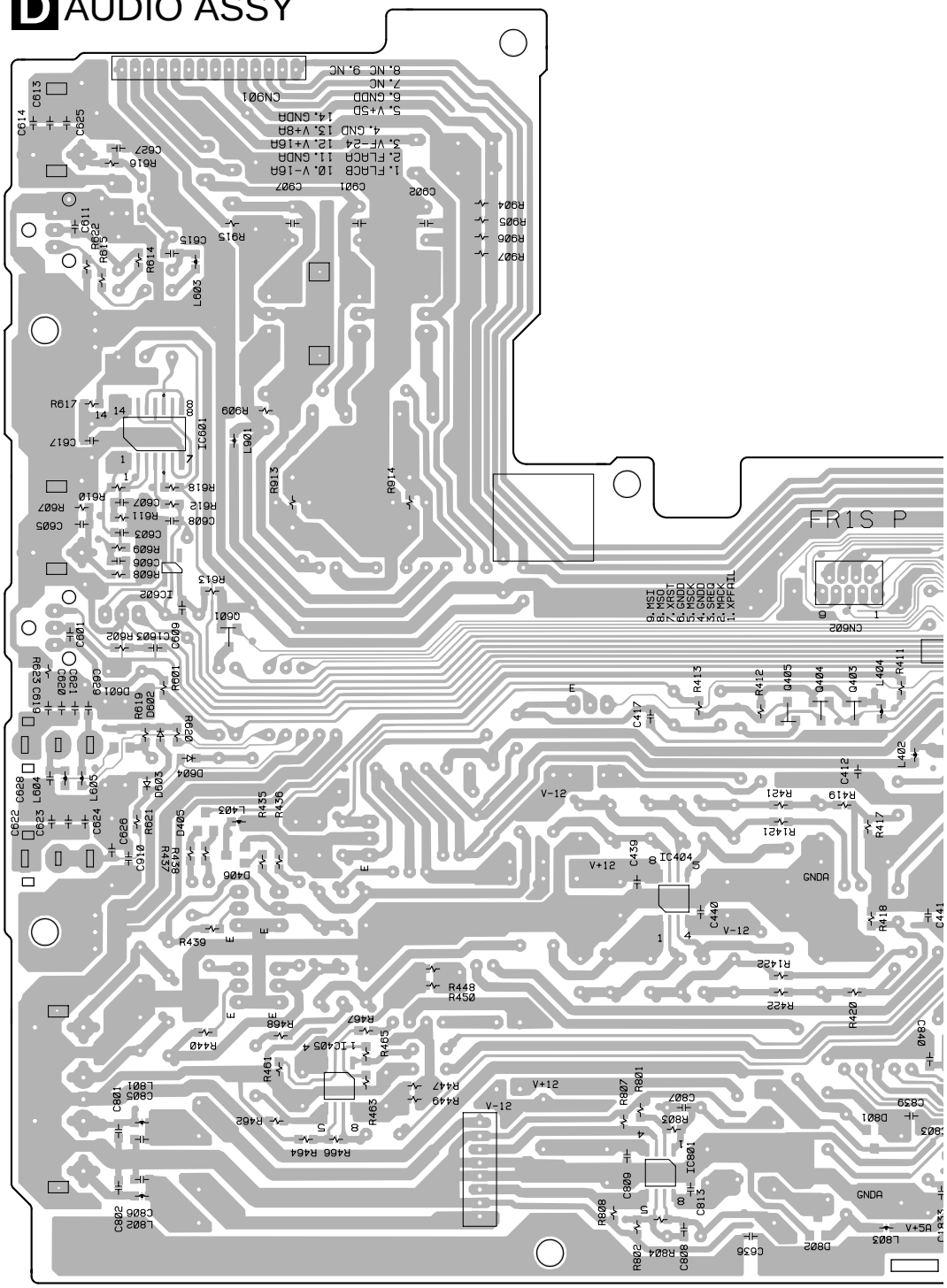
SIDE A




H CN201
A CN302
SIDE A
CONTACT SIDE
PC
ASSY
FR1S P
IC902 IC901 IC903
Q402
Q401
Q407 Q409
Q408 Q410
(PNP1478-A)

D AUDIO ASSY

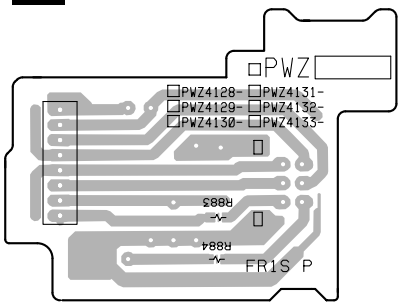
SIDE B



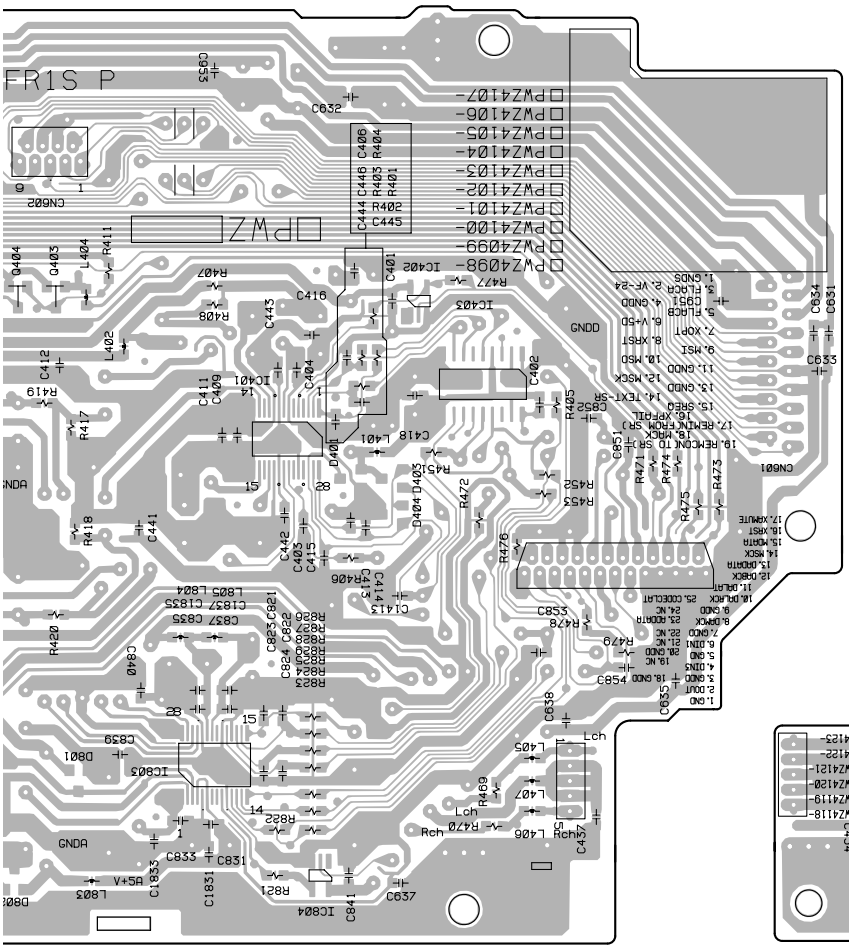
(PNP1478-A)

SIDE B

F VOLUME ASSY



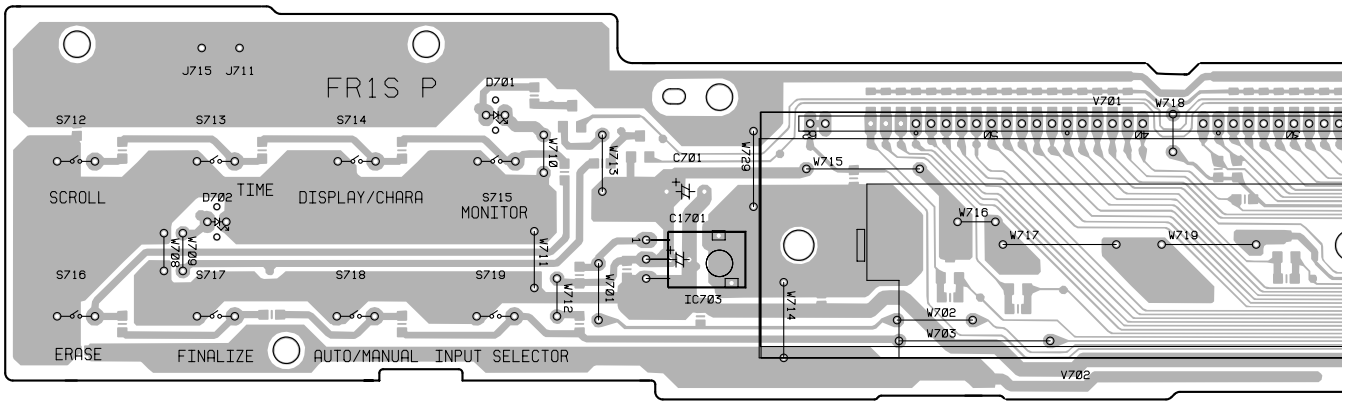
(PNP1478-A)



4.4 OPERATING ASSY

SIDE A

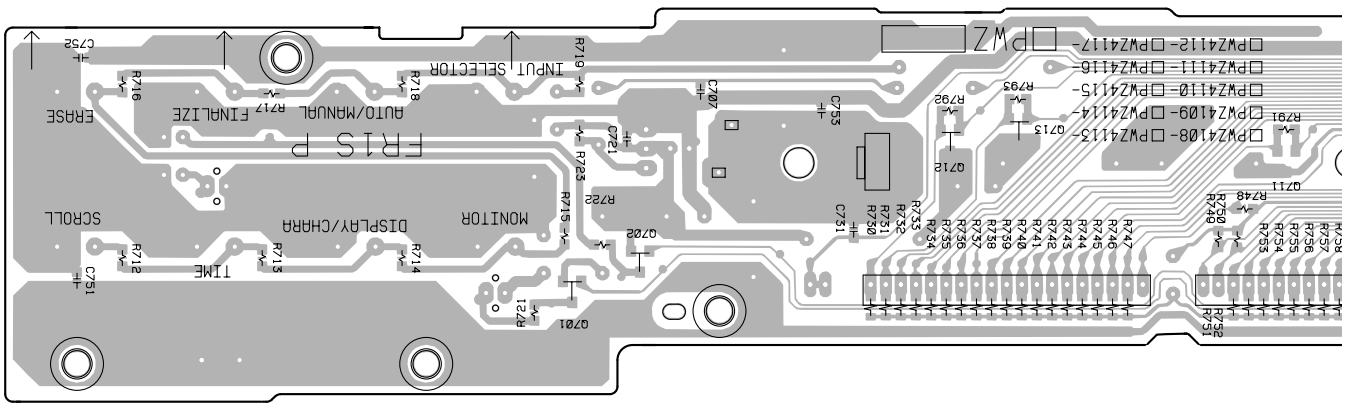
G OPERATING ASSY



(PNP1478-A)

G OPERATING ASSY

SIDE B

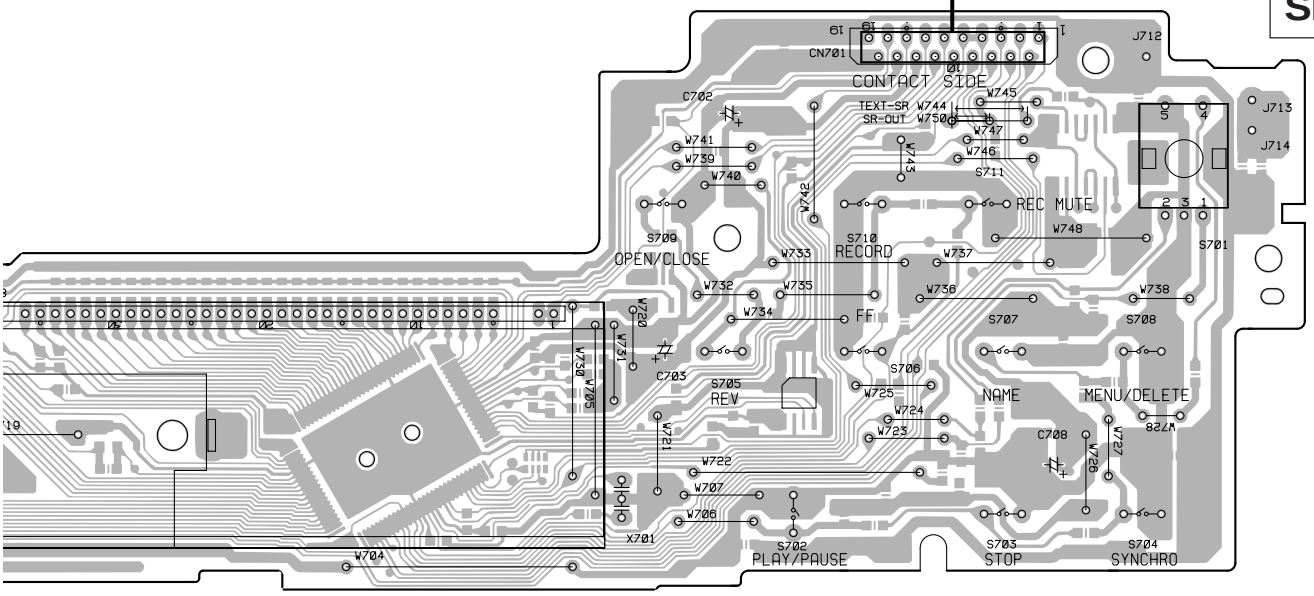


(PNP1478-A)

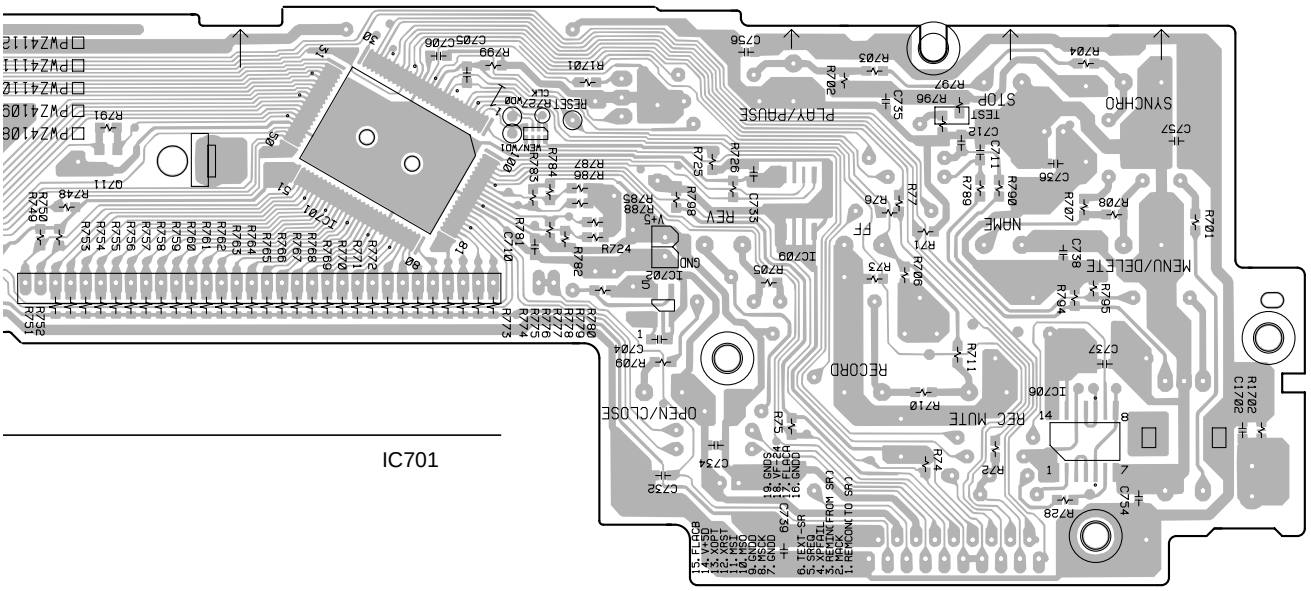
Q701 Q702 Q712 Q713

D CN601

SIDE A



SIDE B



5. PCB PARTS LIST

NOTES :
- *Parts marked by "* NSP *" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω → 56 × 10¹ → 561 ..... RD1/4PU 5 6 1 J
47k Ω → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → R50 ..... RN2H R 5 0 K
1 Ω → 1R0 ..... RS1P 1 R 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

5.1 LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	Part No.			Remarks
		KU/CA type	WV type	WY type	
	CD-R CORE PCB ASSY	PYY1286	PYY1286	PYY1286	
NSP	MECHA PCB ASSY	PWX1625	PWX1625	PWX1625	
NSP	LOAB ASSY	VWG2171	VWG2171	VWG2171	
NSP	COMPLEX ASSY	PWM2315	PWM2316	PWM2316	
	├ AUDIO ASSY	PWZ4098	PWZ4099	PWZ4099	
	├ OPERATING ASSY	PWZ4108	PWZ4109	PWZ4109	
NSP	├ HEADPHONE ASSY	PWZ4118	PWZ4119	PWZ4119	
NSP	└ VOLUME ASSY	PWZ4128	PWZ4129	PWZ4129	
⚠	POWER SUPPLY UNIT	PWR1029	PWR1029	PWR1029	

■ CONTRAST OF PCB ASSEMBLIES

E HEADPHONE ASSY

Although PWZ4118 and PWZ4119 are different in part number, they consist of the same components.

F VOLUME ASSY

Although PWZ4128 and PWZ4129 are different in part number, they consist of the same components.

G OPERATING ASSY

PWZ4108 and PWZ4109 are constructed the same except for the followIng:

Mark	Symbol and Description	Part No.		Remarks
		PWZ4108	PWZ4109	
	R781	Not used	RS1/10S473J	
	R785	RS1/10S473J	Not used	

PCB PARTS LIST FOR PDR-609/KU/CA UNLESS OTHERWISE NOTED

Mark	No.	Description	Part No.
A		**CDR-CORE ASSY**	
		SEMICONDUCTORS	
	IC101		AK8567
	IC252–IC254, IC421		BA4510F
	IC451		BA5810FP
	IC303		BR93LC66F
	IC401		CXD2585Q
	IC255		HD74HC4053FP
	IC310		HD74HC573T
	IC502		LC324265AT-25
	IC102, IC103, IC304		LM358M
	IC309		LP2980IM5-4.5
	IC161		MM1385AN
	IC302		MM1522XU
	IC251		NJU7016M
	IC201		PA9007A
	IC504		PCX1027
	IC501		PDC069A
	IC301		PE5190B
	IC503		PQ20WZ51
	IC931		PST9245
	IC307		TC7S00F
	IC506		TC7S02F
	IC308		TC7S14F
	IC507		TC7WU04F
	Q451, Q452		2SK208
	Q204, Q205, Q401, Q402		DTA124EK
	Q501		DTA143EK
	Q101, Q201, Q203		DTC114TK
	Q502		DTC124EK
	D104, D201, D303, D451, D452		1SS355
	D105, D202, D251		DA204K
	D252		MA704
	D161, D162, D501–D503		RB521S-30
		COILS AND FILTERS	
	X301		PSS1024
	X501		PSS1025
	L101, L1579, L302–L304		QTL1013
	L401, L402, L501–L503		QTL1013
	L507, L508, L511, L513, L514		QTL1013
	L517, L521, L522		QTL1013
	L509, L510, L515, L516		VTL1077
	L518–L520		VTL1077
		CAPACITORS	
	C901 (56µF/10V)		ACH7109
	C129		CCSRCH100D50
	C139, C304, C307–C309, C320		CCSRCH101J50
	C104, C105		CCSRCH121J50
	C574		CCSRCH220J50
	C406, C420		CCSRCH221J50
	C106, C119, C404		CCSRCH331J50
	C128, C263, C352		CCSRCH470J50
	C213, C256, C474, C475, C511		CCSRCH471J50
	C517, C518		CCSRCH5R0C50
	C902		CEV101M6R3
	C144, C151, C163, C201, C253		CEV220M6R3
	C325, C501, C503, C505, C519		CEV220M6R3
	C531, C537, C539, C549, C570		CEV220M6R3
	C581, C582		CEV220M6R3
	C281		CEV2R2M50
	C101, C127, C130, C401, C409		CEV470M6R3
	C452		CEV470M6R3
	C108, C232, C258, C543		CKSQYB105K10
	C114–C117, C123, C133, C215		CKSQYB334K16
	C227–C229		CKSQYB334K16
	C426		CKSQYB474K16
	C141, C207, C233, C252, C257		CKSRYB102K50
	C322, C403, C407, C525, C932		CKSRYB102K50
	C121, C137, C140, C161, C162		CKSRYB103K50
	C226, C230, C231, C251, C412		CKSRYB103K50
	C425, C454–C459, C470–C473		CKSRYB103K50
	C515, C546, C557, C572, C583		CKSRYB103K50
	C136, C198, C209, C224, C225		CKSRYB104K16
	C303, C305, C306, C310, C314		CKSRYB104K16
	C421, C514, C516, C521, C522		CKSRYB104K16
	C547, C548		CKSRYB104K16
	C208, C414		CKSRYB152K50
	C122		CKSRYB222K50
	C138, C259		CKSRYB223K50
	C212, C451		CKSRYB272K50
	C113, C205		CKSRYB333K16
	C480, C481		CKSRYB471K50
	C124		CKSRYB472K50
	C102, C206, C413		CKSRYB473K16
	C132		CKSRYB563K16
	C204, C408, C468, C469		CKSRYB681K50
	C125, C463, C464		CKSRYB682K50
	C416, C905		CKSRYF103Z50
	C107, C111, C120, C126, C131		CKSRYF473Z25
	C135, C142, C145, C164, C199		CKSRYF473Z25
	C202, C211, C214, C217		CKSRYF473Z25
	C254, C255, C260–C262, C313		CKSRYF473Z25
	C315–C319, C321, C324, C351		CKSRYF473Z25
	C361, C402, C405, C410, C411		CKSRYF473Z25
	C415, C453, C465, C482, C502		CKSRYF473Z25
	C504, C506, C508–C510		CKSRYF473Z25
	C512, C513, C520, C524		CKSRYF473Z25
	C527, C528, C530, C532–C536		CKSRYF473Z25
	C538, C540–C542, C545, C550		CKSRYF473Z25
	C552, C554, C556, C558, C571		CKSRYF473Z25
	C584, C904, C931		CKSRYF473Z25
	C585 (0.22F/3.5V)		PCH1145
	C143 (0.1F/5.5V)		PCH1146
		RESISTORS	
	R454, R472 (10Ωx4)		ACN7041
	R307, R308, R360, R361(22kΩx4)		ACN7073
	R536, R552 (100kΩx4)		ACN7081
	R321, R322, R503 (100Ω)		DCN1092
	R507–R510, R556 (100Ω)		DCN1092

Mark	No.	Description	Part No.
	R1901–R1904, R901–R905		RS1/10S0R0J
	R116, R468, R470, R476, R478		RS1/16S1002F
	R114		RS1/16S1302F
	R115		RS1/16S1502F
	R465, R467		RS1/16S1603F
	R596		RS1/16S2001F
	R118, R119, R477, R479		RS1/16S2002F
	R464, R466		RS1/16S2202F
	R102		RS1/16S4701F
	R126		RS1/16S4703F
	R598		RS1/16S5100F
	R469, R471		RS1/16S9102F
	Other Resistors		RS1/16S□□□ J

OTHERS

	CN101	FFC CONNECTOR 32P	PKN1024
	CN453	CONNECTOR 2P	S2B-PH-SM3
	CN451	CONNECTOR 3P	S3B-PH-SM3
	CN901	CONNECTOR 6P	S6B-PH-SM3
	CN102	CONNECTOR 8P	S8B-PH-SM3
	CN452	FFC CONNECTOR 8P	VKN1300
	CN302	FFC CONNECTOR 9P	VKN1301
	CN502	FFC CONNECTOR 25P	VKN1317
	KN901	EARTH METAL FITING	VNF1109

B MECHA PCB ASSY

SEMICONDUCTORS

PC651		NJL5809K-F1

SWITCHE

S601		PSG1014

RESISTORS

Other Resistors		RD1/4PU□□□ J

OTHERS

J601		D20PWW0305E

C LOAB ASSY

OTHERS

	CN101	KR CONNECTOR (3P)	S3B-PH-K-S

SWITCHE

S101		VSK1011

D AUDIO ASSY (PWZ4098)

SEMICONDUCTORS

	IC803	AK4524VF
	IC405	BA4560F
	IC404	NJM4558MD
	IC801	NJM4565M
⚠	IC903	NJM7805FA
⚠	IC901	NJM7812FA
⚠	IC902	NJM7912FA
	IC601	TC74HCU04AF
	IC804	TC7SU04F
	Q407, Q408	2SD2144S
	Q402	DTA114ES
	Q601	DTA114TK
	Q401	DTC124ES
	D602–D604	1SS355
	D801, D802	DA204K
	D406, D601	DAP202K

COILS AND FILTERS

	L403, L405–L407, L603–L605	DTL1058
	L803–L805, L901, L9447, L9448	OTL1040
	L602	PTL1003

CAPACITORS

	C626, C821–C823	CCSQCH101J50
	C607	CCSQCH470J50
	C839	CCSQCH471J50
	C832, C834, C836, C838	CEAT100M50
	C602, C612, C616, C618	CEAT101M10
	C909	CEAT102M16
	C431, C432, C803, C804	CEAT220M50
	C819, C820	CEAT220M50
	C427, C428, C811, C815	CEAT221M25
	C913, C914	CEAT221M25
	C435, C436	CEAT470M25
	C605	CKSQYB102K50
	C1413, C1476, C1603, C439, C440	CKSQYB103K50
	C606, C615, C809, C824, C841	CKSQYB103K50
	C901, C902, C907, C951	CKSQYB103K50
	C613, C831, C833, C835, C837	CKSQYB104K25
	C601, C611, C617, C619, C622	CKSQYB473K25
	C402, C403, C406, C437	CKSQYF103Z50
	C632, C633, C637, C638, C813	CKSQYF103Z50
	C1807, C1808	CQHA271J50
	C433, C434	CQMBA102J50
	C1421, C1422	CQMBA332J50
	C1427, C1428, C425, C426	CQMBA471J50

RESISTORS

	R2429, R2430	RD1/2VM101J
	R410	RD1/2VM272J
	R1409, R409	RD1/2VM562J
	R443, R444	RD1/4VM102J
	R1425, R1426, R423, R424	RD1/4VM181J
	R431, R432	RD1/4VM223J
	R433, R434, R441, R442	RD1/4VM471J
	R1423, R1424, R1429, R1430	RD1/4VM562J
	R1421, R1422, R419, R420	RN1/10SE4701D
	R805, R806	RS1/2LMF101J
	Other Resistors	RS1/10S□□□ J

OTHERS

	CN402	CONNECTOR 5P	05PL-FJ
	CN901	CONNECTOR 14P	14R-FJ
	CN601	FFC CONNECTOR 19P	9604S-19C
	JA601	OPTICAL LINK IN	GP1FA550RZ
	JA604	OPTICAL LINK OUT	GP1FA550TZ
	JA605	1P JACK (ORG)	PKB1028
	JA603	1P JACK (ORG)	PKB1033
	JA606, JA607	JACK	PKN1004
	JA1403	4P JACK	VKB1132
	CN602	FFC CONNECTOR 9P	VKN1240
	CN401	FFC CONNECTOR 25P	VKN1256
	KN401–KN403, KN601	EARTH METAL FITTING	VNF1084

Mark	No.	Description	Part No.

D AUDIO ASSY (PWZ4099)

SEMICONDUCTORS

	IC803		AK4524VF
	IC405		BA4560F
	IC404		NJM4558MD
	IC801		NJM4565M
⚠	IC903		NJM7805FA
⚠	IC901		NJM7812FA
⚠	IC902		NJM7912FA
	IC401		PE8001A
	IC601		TC74HCU04AF
	IC402, IC804		TC7SU04F
	Q407–Q410		2SD2144S
	Q402		DTA114ES
	Q404, Q601		DTA114TK
	Q403		DTA124EK
	Q405		DTC124EK
	Q401		DTC124ES
	D602–D604		1SS355
	D401, D801, D802		DA204K
	D403		DAN202K
	D404–D406, D601		DAP202K

COILS AND FILTERS

	L403, L405–L407, L603–L605		DTL1058
	L402, L404, L803–L805, L901		OTL1040
	L9447, L9448		OTL1040
	L602		PTL1003

CAPACITORS

	C413–C415, C626, C821–C823		CCSQCH101J50
	C444–C446, C607		CCSQCH470J50
	C834, C838		CEAT100M50
	C602, C612, C616, C618		CEAT101M10
	C903, C904, C908		CEAT101M25
	C913, C914		CEAT102M35
	C435, C436, C952		CEAT470M25
	C605		CKSQYB102K50
	C1476, C1603, C401, C403		CKSQYB103K50
	C439, C440, C606, C615, C809		CKSQYB103K50
	C824, C841, C901, C902, C907		CKSQYB103K50
	C951		CKSQYB103K50
	C404, C409, C613, C831, C833		CKSQYB104K25
	C835, C837		CKSQYB104K25
	C601, C611, C617, C619, C622		CKSQYB473K25
	C406, C437, C632, C633, C638		CKSQYF103Z50
	C813		CKSQYF103Z50
	C442, C443		CKSQYF473Z25
	C1807, C1808		CQHA271J50
	C433, C434		CQMBA102J50
	C423–C426, C429, C430		CQMBA152J50
	C405, C410, C909 (470µF/6.3V)		PCH1123
	C421, C422, C431, C432 (47µF/50V)		PCH1124
	C803, C804, C819, C820 (47µF/50V)		PCH1124
	C407, C408, C420 (4.7µF/50V)		PCH1127
	C427, C428, C811 (220µF/25V)		PCH1128
	C815, C832, C836 (220µF/25V)		PCH1128

Mark	No.	Description	Part No.

RESISTORS

	R410		RD1/2VM272J
	R1409, R409		RD1/2VM562J
	R443, R444		RD1/4VM102J
	R425–R428		RD1/4VM103J
	R423, R424		RD1/4VM182J
	R431, R432		RD1/4VM223J
	R433, R434, R441, R442		RD1/4VM471J
	R2429, R2430		RDR1/2PM101J
	R421, R422		RN1/10SE1801D
	R805, R806		RS1/2LMF101J
	Other Resistors		RS1/10S□□□ J

OTHERS

	CN402	CONNECTOR 5P	05PL-FJ
	CN901	CONNECTOR 14P	14R-FJ
	CN601	FFC CONNECTOR 19P	9604S-19C
	JA601	OPTICAL LINK IN	GP1FA550RZ
	JA604	OPTICAL LINK OUT	GP1FA550TZ
	JA605	1P JACK (ORG)	PKB1028
	JA603	1P JACK (ORG)	PKB1033
	JA606, JA607	JACK	PKN1004
	JA1403	4P JACK	VKB1132
	CN602	FFC CONNECTOR 9P	VKN1240
	CN401	FFC CONNECTOR 25P	VKN1256
	KN401–KN403, KN601		VNF1084
		EARTH METAL FITTING	

G OPERATING ASSY

SEMICONDUCTORS

	IC709		BR24C64F
	IC701		PDC066A
	IC706		TC74HC00AF
	Q711, Q712		2SC2412K
	Q701, Q702		DTA124EK
	D701, D702		SLR-343VC

COILS AND FILTERS

	X701	(10MHz)	DSS1048

SWITCHES

	S701		RSC1003
	S702–S719		VSG1009

CAPACITORS

	C707, C711, C712		CCSQCH101J50
	C1701, C702, C703		CEAL101M6R3
	C705, C706, C710, C721		CKSQYB103K50
	C733, C734, C737		CKSQYB103K50

RESISTORS

	R727	(22kΩ)	ACN7073
	Other Resistors		RS1/10S□□□ J

OTHERS

	CN701	FFC CONNECTOR 19P	9604S-19C
		REMOTE RECEIVER UNIT	GP1U27X
	V701	FL TUBE	PEL1101

Mark	No.	Description	Part No.
E		**HEADPHONE ASSY**	
		COILS AND FILTERS	
	L451–L453		QTL1015
		CAPACITORS	
	C458, C459		CCSQCH102J50
	C451		CKCYF473Z50
	C452, C453		CKSQYF104Z25
		RESISTORS	
	VR401	(500Ω–B x2)	RCV1123
		OTHERS	
	CN410	FJ CONNECTOR 5P	05R-FJ
	JA403	HEADPHONE JACK	RKN1002
	KN410	EARTH METAL FITTING	VNF1084
F		**VOLUME ASSY**	
		RESISTORS	
	VR802	(50kΩ-A x2)	PCS1017
	Other Resistors		RS1/10S□□□ J
H		**POWER SUPPLAY UNIT**	
		SEMICONDUCTORS	
	IC3 (800mA/125V)		491.800
	IC1, IC2, IC4 (1.6A/125V)		49101.6

6. ADJUSTMENT

6.1 DISCS TO BE USED

• SERVO SYSTEM ADJUSTMENT

CD: Test disc for adjustment (STD-903) or equivalent
Test disc for inspection (STD-914) or equivalent

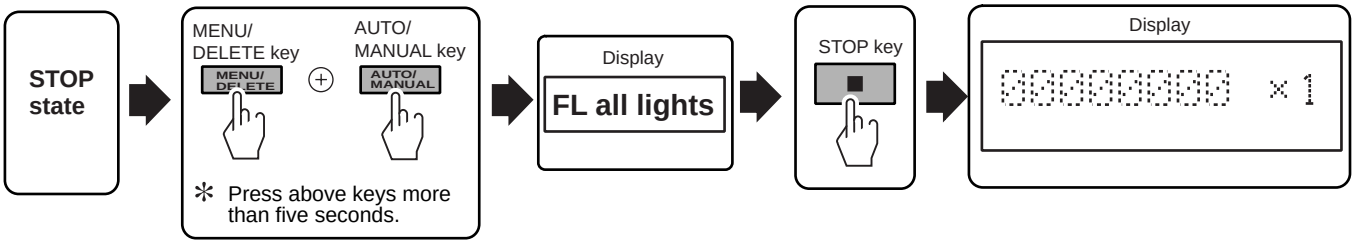
6.2 MEASURING INSTRUMENTS

(1) Laser power meter
Following power meter manufactured by Advantest Corporation or equivalent:
TQ8210 + TQ82017
TQ8215 + TQ82021
TQ8215 + TQ82010 + TQ82017
LE8010 (by LEADER)
(2) Oscilloscope
(3) CD Jitter Meter

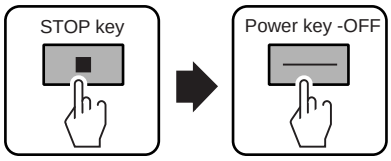
6.3 TEST MODE

6.3.1 How to Enter the Test Mode

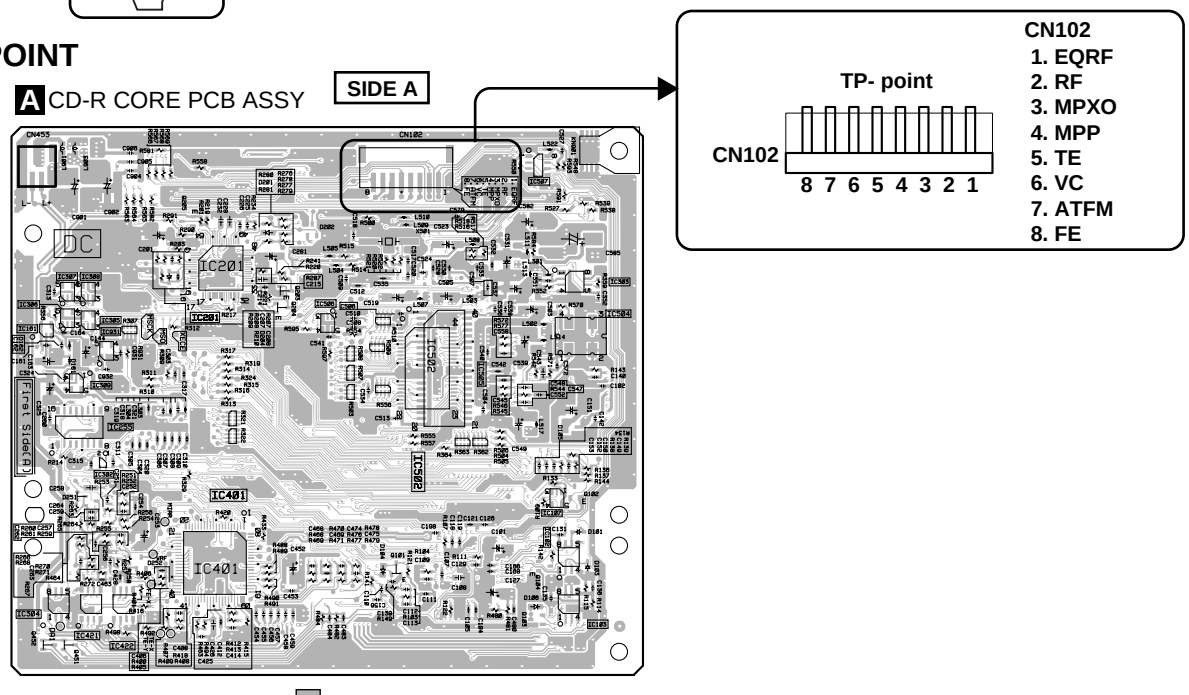
TEST MODE : ON



TEST MODE : STOP → CANCEL



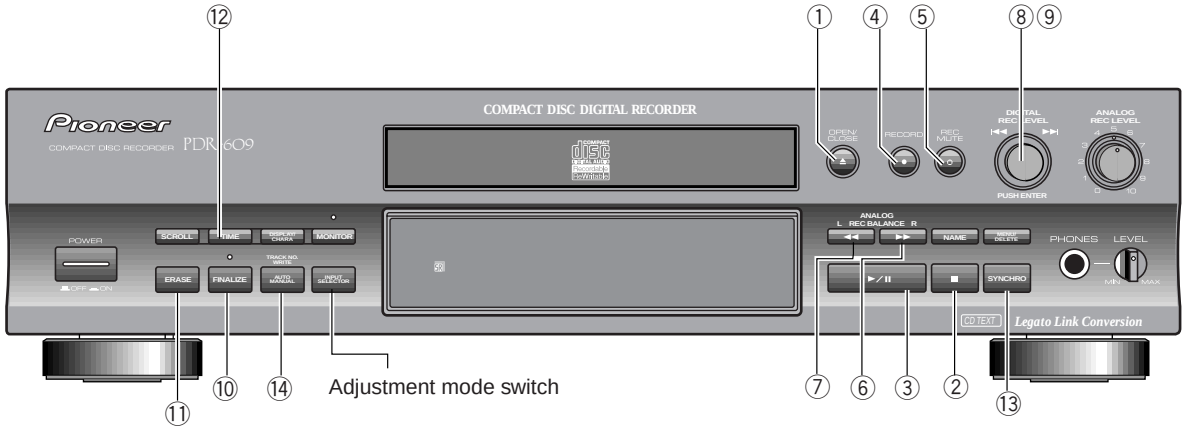
6.3.2 TP- POINT



6.4 NECESSARY ADJUSTMENT POINTS

When	Adjustment Points	
■ EXCHANGE CD-R CORE (Mechanism) ASSY		
Exchange Mechanism Assy CD-R Pickup	**Mechanical point**	————————
	Electric point	6.6 LD Power adjustment 6.7 Servo Adjustment (Automatic Adjustment)
Exchange Mechanism Assy Spindle Motor	**Mechanical point**	————————
	Electric point	6.7 Servo Adjustment (Automatic Adjustment)
■ EXCHANGE CD-R CORE (PCB) ASSY		
Exchange PCB CDRR CORE (PCB) ASSY	**Mechanical point**	————————
	Electric point	6.6 LD Power adjustment 6.7 Servo Adjustment (Automatic Adjustment)

6.5 OPERATIONS IN TEST MODE



■ LD Power Adjustment (INPUT SELECTOR: ANALOG)

Key No.	Assignment Key	Contents of Movement
①	▲ (OPEN/CLOSE)	Tray Open/Close
②	■ (STOP)	LD power adjustment end Turn off the LD and disc selection set to CD.
③	►/II (PLAY/PAUSE)	Store the power adjustment value to the EEPROM and shift to the next power adjustment.
④	● (RECORD)	LD POWER adjustment standby Switch the setting of I◄◄•►►I key during adjustment. (coarse adjustment ⟷ fine adjustment : default is the coarse adjustment)
⑤	O (REC MUTE)	Starts the LD POWER adjustment (from 0) (CD: Playback power, CD-R/RW: Record power)
⑥	►► (F SCAN)	Move the pickup to outer periphery of the disc
⑦	◄◄ (R SCAN)	Move the pickup to inner periphery of the disc
⑧	I◄◄ ►►I (JOG ±)	Adjustment value setting
⑨	ENTER	Adjustment data register
⑪	ERASE	Disc specification switch
⑫	TIME	Adjustment from the adjustment result stored in the EEPROM at adjustment standby. During adjustment, shift to the next power adjustmnet not to store the current power adjustment value in the EEPROM.

■ Servo Adjustment (INPUT SELECTOR: OPTICAL)

Key No.	Assignment Key	Contents of Movement
①	▲ (OPEN/CLOSE)	Tray Open/Close
②	■ (STOP)	Servo OFF
③	►/II (PLAY/PAUSE)	Spindle servo ON, Tracking servo ON/OFF
④	● (RECORD)	Starts the automatic adjustment of servo adjustment ("FEOS" is displayed.)
⑥	►► (F SCAN)	Move the pickup to outer periphery of the disc
⑦	◄◄ (R SCAN)	Move the pickup to inner periphery of the disc
⑧	I◄◄ ►►I (JOG ±)	Adjustment value setting
⑨	ENTER	Adjustment data register
⑩	FINALIZE	Focus servo ON
⑪	ERASE	Disc specification switch Continue pressing it more than three seconds and initialize the adjustment data.
⑬	SYNCHRO	Execute the average adjustment
⑭	AUTO/MANUAL	Servo adjustment mode feed

6.6 LD POWER ADJUSTMENT

DANGER – LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.

6.6.1 Playback Power Adjustment

Test Point	Pickup objective lens
Adjustment Value	0.9 mW ± 0.05 mW
Purpose	Optimizing playback power of laser diode.
Symptom when Out of Adjustment	Incapable of disc discrimination, playback, or track searches. Or track jumping.

Adjustment method	FL Indication
[Procedure]	
1. Enter the Test mode.	『０００００００＿＿ｘ１』
2. Press the INPUT SELECTOR key so that "ANALOG" appears on the FL display.	
3. Press the ERASE key so that "CD" appears on the FL display.	
4. Move the pickup to the position where the power is easy to measure by pressing the SCAN key. (◄◄ ►►)	
5. Press the RECORD and REC MUTE key in order, and light the LD.	『ＰＬＡＹ＿＿＿＊００＿＿』
6. Turn the JOG key to adjust the power. Switch the coarse adjustment and the fine adjustment by pressing the RECORD key, and adjust it. (initial state is the coarse adjustment.)	
7. Press the ENTER key to register the adjustment if the power became the adjustment value.	
8. Press the STOP key to goes out the LD, and adjustment is completed.	『０００００００＿＿ｘ１』

DANGER – LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.

6.6.2 CD-R Record Power Adjustment

Test Point	Pickup objective lens
Adjustment Value	R REC : 4.3 mW ± 0.1 mW (= A value) ; R Over Drive : A value + 0.1mW ± 0.01 mW
Purpose	Optimizing CD-R recording power of laser diode.
Symptom when Out of Adjustment	Incapable of CD-R recording, self-pre recorded CD-R disc playback. Sound pauses, track jumping, or bad RF wave shape (though no failure in playing CD).

Adjustment method	FL Indication
[Procedure]	
1. Enter the Test mode.	『０００００００＿＿ｘ１』
2. Press the INPUT SELECTOR key so that "ANALOG" appears on the FL display.	
3. Press the ERASE key so that "CD-R" appears on the FL display.	
4. Move the pickup to the position where the power is easy to measure by pressing the SCAN key. (◄◄ ►►)	
5. Press the RECORD and REC MUTE key in order, and light the LD.	『Ｒ＿ＲＥＣ＿＿＊０００』
<Adjustment of CD-R Record Power>	
6. Turn the JOG key to adjust the power. Switch the coarse adjustment and the fine adjustment by pressing the RECORD key, and adjust it. (initial state is the coarse adjustment.)	
7. Press the PLAY/PAUSE key to register the adjustment if the power became the adjustment value. (assume the power when it was decided by A value) When it is registered, shift to the Overdrive power adjustment automatically.	
<Adjustment of CD-R Overdrive Power>	
8. Turn the JOG key to adjust the power. Switch the coarse adjustment and the fine adjustment by pressing the RECORD key, and adjust it. (initial state is the coarse adjustment.)	『Ｒ＿ＯＤ＿＿＿＊０００』
9. Press the ENTER key to register the adjustment if the power became the adjustment value.	
10. Press the STOP key to goes out the LD, and adjustment is completed.	『０００００００＿＿ｘ１』

DANGER – LASER RADIATION WHEN OPEN.
AVOID DIRECT EXPOSURE TO BEAM.

6.6.3 CD-RW Record Power Adjustment

Test Point	Pickup objective lens
Adjustment Value	RW Bias : 2.3 mW ± 0.05 mW, RW Rec : 3.2 mW ± 0.05 mW, RW Erase : 5.2 mW ± 0.1 mW
Purpose	Optimizing CD-RW recording power of laser diode.
Symptom when Out of Adjustment	Incapable of CD-RW recording, self-pre recorded CD-RW disc playback. Sound pauses, track jumping, or bad RF wave shape (though no failure in playing CD).

Adjustment method	FL Indication
[Procedure] 1. Enter the Test mode. 2. Press the INPUT SELECTOR key so that "ANALOG" appears on the FL display. 3. Press the ERASE key so that "CD-RW" appears on the FL display. 4. Move the pickup to the position where the power is easy to measure by pressing the SCAN key. (◄◄ ►►) 5. Press the RECORD and REC MUTE key in order, and light the LD.	『００００００００＿＿＿ｘ１』
<Adjustment of CD-RW BIAS Power> 6. Turn the JOG key to adjust the power. Switch the coarse adjustment and the fine adjustment by pressing the RECORD key, and adjust it. (initial state is the coarse adjustment.) 7. Press the PLAY/PAUSE key to register the adjustment if the power became the adjustment value. When it is registered, shift to the CD-RW Record Power Adjustment automatically. **Note:** In the CD-RW Bias Power Adjustment, in the case that the power is over 2.3 mW when the LD lighted, do not need to perform the Bias Power Adjustment. Set adjustment value of the CD-RW record power to + 0.9mW ± 0.05mW against the power in LD lighting then.	『ＲｗＢＩＡＳ＿＊００００』
<Adjustment of CD-RW Record Power> 8. Turn the JOG key to adjust the power. Switch the coarse adjustment and the fine adjustment by pressing the RECORD key, and adjust it. (initial state is the coarse adjustment.) 9. Press the PLAY/PAUSE key to register the adjustment if the power became the adjustment value. When it is registered, shift to the CD-RW Erase Power Adjustment automatically.	『ＲｗＲＥＣ＿＿＊００００』
<Adjustment of CD-RW Erase Power> 10.Turn the JOG key to adjust the power. Switch the coarse adjustment and the fine adjustment by pressing the RECORD key, and adjust it. (initial state is the coarse adjustment.) 11. Press the ENTER key to register the adjustment if the power became the adjustment value. 12. Press the STOP key to goes out the LD, and adjustment is completed.	『ＲｗＥＲＡＳ＿＊＊＊＊＊』 『００００００００＿＿＿ｘ１』

Cautions:

(1) All the reading values of power meter of this adjustment are values with an average.

(2) How to confirm the adjustment value:
When enter the power adjustment mode, enter it by pressing the RECORD and TIME keys in order.
Furthermore, can confirm the adjustment value of each power stored in EEPROM by switching the TIME key.
However, RW cannot see all adjustment results. Use DAC the same as erase power in the Bias Power Adjustment, and perform the adjustment of record power while outputting the setting value of erase power decided in the Bias Power Adjustment. And perform the Erase Power Adjustment while outputting the setting value of the record power.
Therefore, the value of Bias Power Adjustment does not remain after adjustment of the erase power. (as for the displayed adjustment value, erase power is the same as bias power.)
It is only erase power that can confirm the adjustment result with the power meter among power of RW.
As for the value of Record Power Adjustment, only setting numeric value is readable, but output power becomes the same as the erase power.
Bias power cannot confirm the setting value, too. Be not used during actual record operations either.

6.7 SERVO ADJUSTMENT

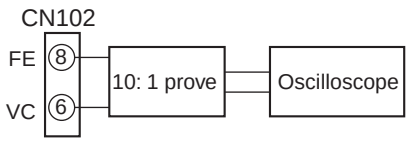
■ MANUAL ADJUSTMENT

6.7.1 Preparations

1. Enter the TEST mode.
2. Press the INPUT SELECTOR key so that "OPTICAL" appears on the FL display.
3. Press the ERASE key more than three seconds to initialize it.
4. Press the SYNCHRO key to perform the average process.
   ➡ "OPTICAL" disappears on the FL display when completed.

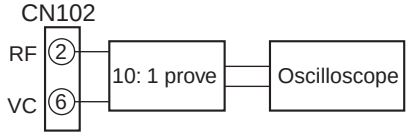
6.7.2 Focus Offset Adjustment

Test Point	CN102-pin 8 (Focus err)
Adjustment Value	0 mV ± 30 mV
Purpose	Optimizing DC offset voltage of focus-error amplifier.
Symptom when Out of Adjustment	Focus-in does not function, or bad RF wave shape.

Adjustment method	**FL Indication**
[Procedure] 1. Monitor the FOCUS ERROR waveform with VC. 2. Adjust the JOG key so that FE offset becomes zero. 3. Press the ENTER key to register the adjustment.  	『ＦＥＯＳ＿＿００＿＿』 『ＦＥＯＳ＿＿＊＊＿?』 『ＦＥＯＳ＿＿＊＊＿＿』

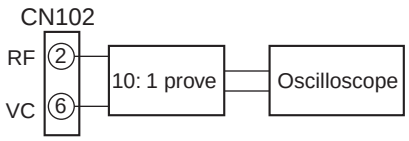
6.7.3 SRFO Offset Adjustment

Test Point	CN102-pin 2 (RF)
Adjustment Value	0 mV ± 30 mV
Purpose	Optimizing DC offset voltage of RFDC output circuit when recording.
Symptom when Out of Adjustment	Recording does not function.

Adjustment method	**FL Indication**
[Procedure] 1. Press the AUTO/MANUAL key and shift to the SRFO Offset Adjustment. 2. Monitor the RFDC waveform with VC. 2. Adjust the JOG key so that RFDC offset becomes zero. 3. Press the ENTER key to register the adjustment.  	『ＳＲＦＯＳ＿００＿＿』 『ＳＲＦＯＳ＿＊＊＿?』 『ＳＲＦＯＳ＿＊＊＿＿』

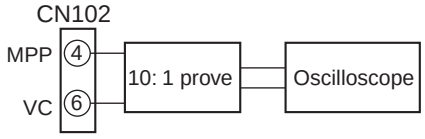
6.7.4 RFOM Offset Adjustment

Test Point	CN102-pin 2 (RF)
Adjustment Value	0 mV ± 30 mV
Purpose	Optimizing DC offset voltage of RFDC output circuit when playing back.
Symptom when Out of Adjustment	Focus-in does not function, incapable of searching, or track jumping.

Adjustment method	FL Indication
[Procedure] 1. Press the AUTO/MANUAL key and shift to the RFOM Offset Adjustment. 2. Monitor the RFDC waveform with VC. 2. Adjust the JOG key so that RFDC offset becomes zero. 3. Press the ENTER key to register the adjustment.  	『ＲＦＯＭＯ＿００＿＿』 『ＲＦＯＭＯ＿＊＊＿？』 『ＲＦＯＭＯ＿＊＊＿＿』

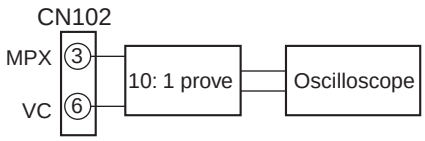
6.7.5 MPP Offset Adjustment

Test Point	CN102-pin 4 (MPP)
Adjustment Value	0 mV ± 50 mV
Purpose	Optimizing DC offset voltage of main signal output circuit.
Symptom when Out of Adjustment	Playback does not function, incapable of searching, or track jumping.

Adjustment method	FL Indication
[Procedure] 1. Press the AUTO/MANUAL key and shift to the MPP Offset Adjustment. 2. Monitor the MPP waveform with VC. 2. Adjust the JOG key so that MPP offset becomes zero. 3. Press the ENTER key to register the adjustment.  	『ＭＰＰＯＳ＿００＿＿』 『ＭＰＰＯＳ＿＊＊＿？』 『ＭＰＰＯＳ＿＊＊＿＿』

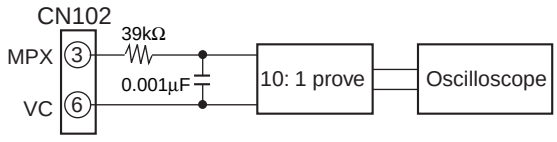
6.7.6 SPP Offset Adjustment

Test Point	CN102-pin 3 (MPX)
Adjustment Value	0 mV ± 50 mV
Purpose	Optimizing DC offset voltage of sub-signal output circuit.
Symptom when Out of Adjustment	Playback does not function, incapable of searching, or track jumping.

Adjustment method	FL Indication
[Procedure] 1. Press the AUTO/MANUAL key and shift to the SPP Offset Adjustment. 2. Monitor the MPX waveform with VC. 2. Adjust the JOG key so that SPP offset becomes zero. 3. Press the ENTER key to register the adjustment.  	『SPPOS_00___』 『SPPOS_**_?』 『SPPOS_**___』

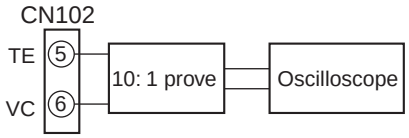
6.7.7 Tracking Gain adjustment

Test Point	CN102-pin 3 (MPX)
Adjustment Value	Minimize (MPP+SPP)
Purpose	Matching gains of pickup main signal output and sub-signal output.
Symptom when Out of Adjustment	Playback does not function, or incapable of searching.

Adjustment method	FL Indication
[Procedure] 1. Press the AUTO/MANUAL key and shift to the Tracking Gain (MS MIX) Adjustment. 2. Move the Pickup to center of the disc by pressing the SCAN key. (◄◄ ►►) 3. Monitor the MPX signal and set a CD disc. 4. Press the FINALIZE key to FOCUS IN. 5. Press the PLAY/PAUSE key to turn the SPINDLE. (CAV) 6. Adjust the JOG key so that MPX waveform (MPP+SPP) becomes minimum. 7. Press the ENTER key to register the adjustment. 8. Press the STOP key to stop the disc rotation.  	『SPPG___70___』 『SPPG___**_?』 『SPPG___**___』

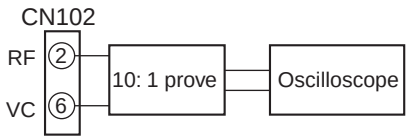
6.7.8 MPP Offset Readjustment

Test Point	CN102-pin 5 (Tracking err)
Adjustment Value	0 mV ± 50 mV
Purpose	Optimizing DC offset voltage of tracking-error output circuit.
Symptom when Out of Adjustment	Playback does not function, incapable of searching, or track jumping.

Adjustment method	**FL Indication**
[Procedure] 1. Press the AUTO/MANUAL key and shift to the MPP Offset Readjustment. (Press the AUTO/MANUAL key several times to appear the right indication.) 2. Monitor the TE waveform with VC. Be careful with monitoring TE waveform instead of MPP waveform in the readjustment ! 3. Adjust the JOG key so that TE offset becomes zero. 4. Press the ENTER key to register the adjustment.  	『MPPOS_＊＊___』 『MPPOS_＊＊_?』 『MPPOS_＊＊___

6.7.9 Focus Bias Adjustment

Test Point	CN102-pin 2 (RF)
Adjustment Value	Minimize jitter value
Purpose	Optimizing DC offset voltage of focus servo loop circuit including pickup.
Symptom when Out of Adjustment	Focus-in does not function, sound pauses, bad RF wave shape, or incapable to playback some discs.

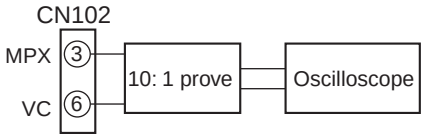
Adjustment method	FL Indication
[Procedure]	
1. Press the AUTO/MANUAL key and shift to the Focus Bias Adjustment.	『ＦＢＩＡＳ＿００＿＿』
2. Press the SYNCHRO key to perform the average process.	
➡ "OPTICAL" disappears on the FL display when completed.	
3. Move the Pickup to center of the disc by pressing the SCAN key. (◄◄ ►►)	
4. Monitor the jitter value and set a CD disc. (use the jitter meter)	
5. Press the FINALIZE key to FOCUS IN.	
6. Press the PLAY/PAUSE key to turn the SPINDLE. (CAV)	
7. Press the PLAY/PAUSE key to TRACKING ON. (EFM CLV)	
8. Adjust the JOG key so that jitter value becomes minimum.	『ＦＢＩＡＳ＿＊＊＿?』
9. Press the ENTER key to register the adjustment.	『ＦＢＩＡＳ＿＊＊＿＿』
➡ Shift to the RFDC Level Adjustment automatically.	『ＲＦＤＣ＿＿＊＊＿＿』
10. Adjustment is completed automatically.	『ＲＦＤＣ＿＿ＡＤＪ＿ＯＫ』
➡Each display the reason that became abnormal when adjustment was not completed normally.	
When did not converge in limit of adjustment possibility	『ＲＦＤＣ＿＿ＡＤＪ＿ＮＧ』
(when it became the lowest level)	
When failed in writing to the EEPROM	『ＲＦＤＣ＿＿ＥＥＰ＿ＮＧ』
11. Press the STOP key to stop the unit.	『ＦＢＩＡＳ＿＊＊＿＿』
Caution:	
In this adjustment, shift to the RFDC Adjustment when pressing the ENTER key before step 9, and there is it when completed in normal on the indication.	
However, must not omit operation of steps 7 from 5 because RFDC is not adjusted to normal when pressing the ENTER key with the state that steps 7 from 5 are not executed.	
	

- The arbitrary value that "＊＊" modified it by adjustment.
- "?" is not displayed in the point that selected an item with the AUTO/MANUAL key, and blink when changes setting value by the input of the JOG key. Press the ENTER key to register the setting value, and disappear the FL indication that the setting value is stored in the EEPROM by normal.

■ AUTOMATIC ADJUSTMENT

6.7.10 Preparation

Test Point	CN102-pin 3 (MPX)
Discs to be Used	CD test disc (STD-903)

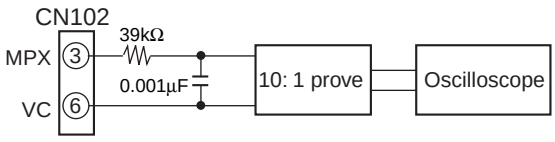
Method	FL Indication
[Procedure] 1. Press the INPUT SELECTOR key so that "OPTICAL" appears on the FL display. ➡ If it was not displayed the Focus Offset Adjustment, press the AUTO/MANUAL key and shift to the Focus Offset Adjustment. 2. Monitor the MPX signal with VC and set a CD disc. 	『ＦＥＯＳ＿＊＊＿』

6.7.11 Automatic Adjustment Start

Method	FL Indication
[Procedure] 1. Press the RECORD key to start the automatic adjustment. ➡ Execute it from "6.7.1 preparations" to "6.7.6 SPP Offset Adjustment" of the Manual Adjustment automatically. And stop by the state that selected an item of next "6.6.7 Tracking Gain Adjustment" once.	『ＦＥＯＳ＿００＿?』 『ＳＰＰＧ＿７０＿』

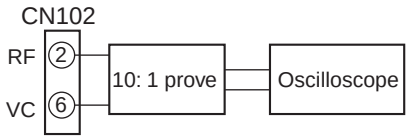
6.7.12 Tracking Gain Adjustment

Test Point	CN102-pin 3 (MPX)
Adjustment Value	Minimize (MPP + SPP)
Purpose	Matching gains of pickup main signal output and sub-signal output.
Symptom when Out of Adjustment	Playback does not function, or incapable of searching.

Adjustment method	FL Indication
[Procedure] 1. Move the Pickup to center of the disc by pressing the SCAN key. (◄◄ ►►) 2. Monitor the MPX signal with VC and set a CD disc. 3. Press the FINALIZE key to FOCUS IN. 4. Press the PLAY/PAUSE key to turn the SPINDLE. (CAV) 5. Adjust the JOG key so that MPX waveform (MPP+SPP) becomes minimum. 6. Press the ENTER key to register the adjustment. ➡ Stop the disc rotation and Excute "6.7.8 MPP Offset Readjustment" automatically. And select an item of next "6.6.9 Focus Bias Adjustment", and stop with the state completed to average processing. 	『ＳＰＰＧ＿＊＊＿?』 『ＳＰＰＧ＿＊＊＿』 『ＦＢＩＡＳ＿００＿』

6.7.13 Focus Bias Adjustment

Test Point	CN102-pin 2 (RF)
Adjustment Value	Minimize jitter value
Purpose	Optimizing DC offset voltage of focus servo loop circuit including pickup.
Symptom when Out of Adjustment	Focus-in does not function, sound pauses, bad RF wave shape, or incapable to playback some discs.

Adjustment method	FL Indication
[Procedure] 1. Move the Pickup to center of the disc by pressing the SCAN key. (◄◄ ►►) 2. Monitor the jitter value and set a CD disc. (use the jitter meter) 3. Press the FINALIZE key to FOCUS IN. 4. Press the PLAY/PAUSE key to turn the SPINDLE. (CAV) 5. Press the PLAY/PAUSE key to TRACKING ON. (EFM CLV) 6. Adjust the JOG key so that jitter value becomes minimum. 7. Press the ENTER key to register the adjustment. ➡ Shift to the RFDC Level Adjustment automatically. 8. Adjustment is completed automatically. ➡ Each display the reason that became abnormal when adjustment was not completed normally. When did not converge in limit of adjustment possibility (when it became the lowest level) When failed in writing to the EEPROM 9. Press the STOP key to stop the operation. **Caution:** In this adjustment, shift to the RFDC Adjustment when pressing the ENTER key before step 7, and there is it when completed in normal on the indication. However, must not omit operation of steps 5 from 3 because RFDC is not adjusted to normal when pressing the ENTER key with the state that steps 5 from 3 are not executed.  	『FBIAS_**_?』 『FBIAS_**___』 『RFDC___**___』 『RFDC___ADJ_OK』 『RFDC___ADJ_NG』 『RFDC___EEP_NG』 『FBIAS_**___』

How to execute the automatic adjustment once again after the automatic adjustment is completed:
1. Press the STOP key to stop the disc rotation. (servo OFF)
2. Press the AUTO/MANUAL key and shift to the Focus Offset adjustment.
3. Press the RECORD key to start the automatic adjustment.

Adjust from "6.7.11 automatic Adjustment Start" to "6.7.13 Focus Bias Adjustment".
Press the STOP key when stops execution of the automatic adjustment on the way and stop processing. Then return to the state of "6.6.10 Preparations" and stop the operation.

<Pickup replacement repair, the final check inspection method after adjustment>

Disc required:
CD-R disc
* [STD-R07(PVC:RDD-74B,RDD-74BJ)]
[STD-R08(PVC:RDD-74,RDD-74U)]
or equivalent
CD-RW disc
* [STD-R11(PVC:RDW-74,RDW-74J)]
or equivalent

[Inspection items]

1. Recording-playback jitter

Method: Measure RF signal (CN102-pin2) by Jitter Meter (Trailing edge).
Specification: 35nS or below.

2. Recording-playback block error

Method: While pushing "MENU/DELETE" key, press "MONITOR" key.
Display: appears in about 4 sec like C1 * * * * *
Specification: 65 pieces or less
(Press "STOP" key to reset display)

3. Recording-playback ATIP error

Method: While pushing "MENU/DELETE" key, press "DISPLAY/CHARA" key.
Display: appears in about 10 sec like ATIP * * * * * *
Left 3 digit datum = Total number of errors
Right 3 digit datum = Maximum continuous error number (Specification item)
Specification: Max continuous error (Right side datum) must be 7 pieces or less.
(Press "STOP" key to reset display)

[Warning]
Scratch, dust, fingerprint, etc. on recording disc may cause deterioration of performance. Be careful no to be occurred.
When CD-RW disc is used for measurement, do not use the same position at more than 100 times.

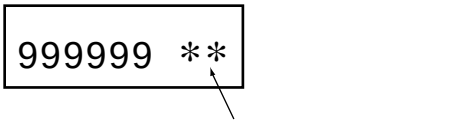
7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 ERROR CODE

Error Code Display for Service
The PDR-609 can display the error codes for service.
When the STOP key is held down for about 10 seconds in stop state in Normal mode, an FL display as shown below is obtained.

- Display



Right 2 FL digits : Error code for service

The error code for service is displayed as a number (ERROR NUMBER), which follows a message "CHECK DISC" or "CHECK." For details, see the table below.

Error code table for service

Code	Symptom	Contents of Error	Possible Cause	Checkpoints
L∗	The unit stops during the tray open/close operation. (CHECK display)	Improper loading	• Defective tray position sensor • Defective loading motor • Improper soldering • Pattern short • Improper power supply	IC451 (BA5810FP)
E∗	The unit stops when PLAY or REC/PAUSE starts. (CHECK display)	Defective slider • The pickup cannot be returned to the specified position.	• Disconnected flexible cable • Defective drive circuit • Abnormal power supply • Abnormal TOC position switch • Improper soldering	S601 (PSG1014) IC451 (BA5810FP) IC401 (CXD2585Q)
P∗	The unit does not read the inserted disc, and stops. (CHECK DISC display)	Defect in spindle • Disc upside-down. • Dirty or cracked disc • Abnormal disc rotation • No signal obtained from the disc	• Defective spindle motor • Defective spindle drive circuit • Abnormal FG signals • Defective WBL circuit • Defective decoder circuit • Unable to read ATIP or subcode • High error rate	PC651 (NJL5809K-F1) IC451 (BA5810FP) IC401 (CXD2585Q)
C∗	The unit stops before it enters REC/PAUSE mode.	Defects related to the recording laser power • Dirty or cracked disc • The optimum recording power cannot be obtained. • Trouble in RF detection.	• Defective laser diode • Trouble in RF detection • Defective RFT RFB circuit • Recording power is not sufficient. • Improper soldering, pattern short • Trouble with power supply • Unable to read ATIP or subcode	IC201 (PA9007A) IC101 (AK8567) IC308 (TC7S14F)
F∗	The unit stops during playback or recording.	Defective pickup • Unable to focus because of dirt or crack on the inserted disc. • Unable to output the proper laser power	• Defective laser diode • Defective focus drive circuits • Defective pickup • Improper soldering • Pattern short • Trouble of power supply	IC451 (BA5810FP) IC401 (CXD2585Q)
A∗	The unit stops in a recording-related operation, displaying "CHECK DISC."	• Unable to focus Stop during recording • The unit stops, being obstructed by a dirt or a crack on the disc.	If any hardware trouble occurs before displaying A∗ or d∗, the unit stops displaying a code other than these codes. Therefore, these service codes are generated only for troubles with the disc.	
d∗	The unit stops in a recording related operation, displaying "CHECK DISC." The unit does not read the inserted disc, and stops.			

The indication for * shows themechanism mode listed below.

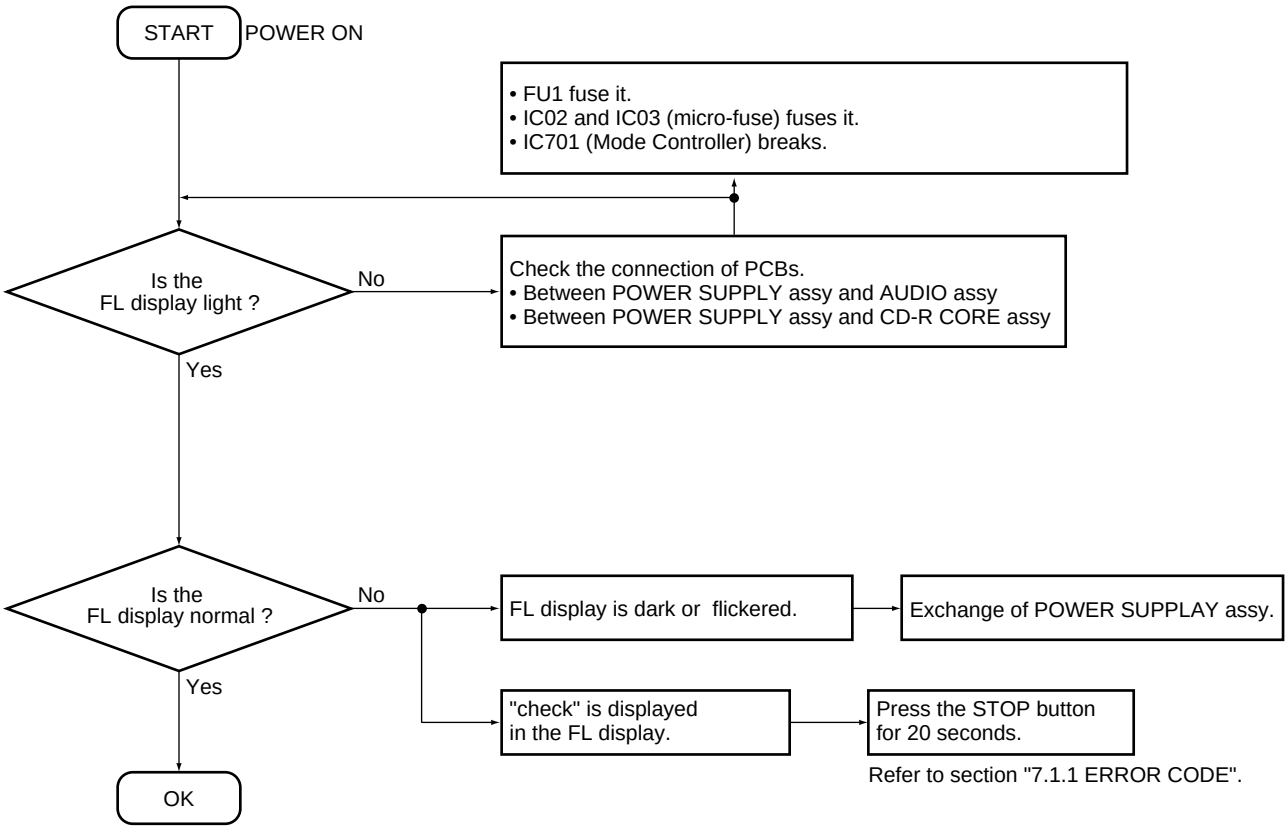
No.	Mechanism Mode	No.	Mechanism Mode	No.	Mechanism Mode
0	PLAY	5	SETUP	A	REC
1	OPEN	6	TOC READ	B	TOC REC
2	STOP	7	–	C	OPC
3	–	8	SEARCH	D	TOC CHECK
4	–	9	REC/PAUSE	E	PMA, ACTUAL PAUSE REC

Error code table for service

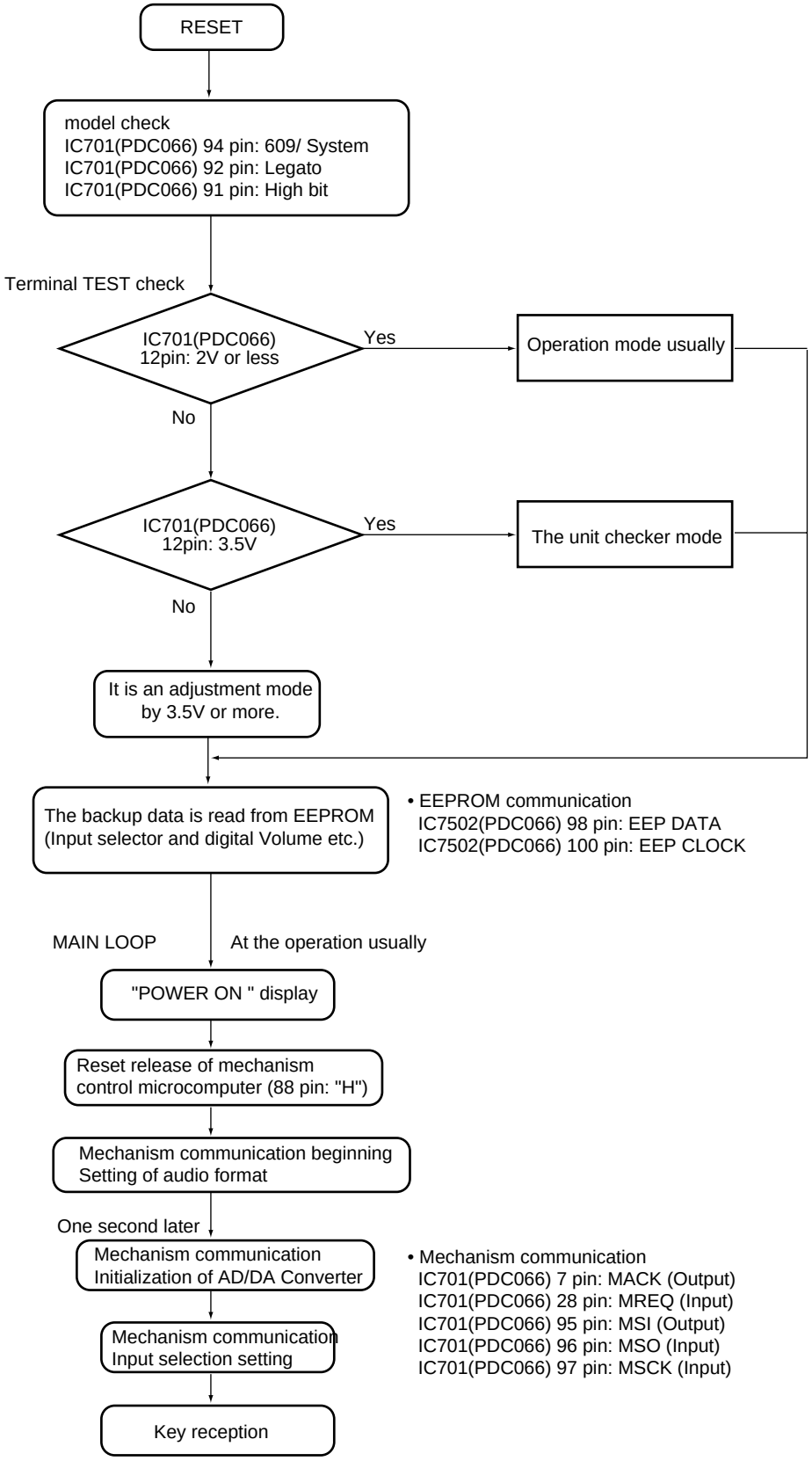
Code	Generation Condition
L∗	In the tray opening procedure, if opening action is not completed within 4.5 sec., the procedure moves to closing action. Afterwards if this closing action is not completed within 4.5 sec., the procedure recalls opening action again. This recalled opening action is not also completed within 4.5 sec., the operation halts. In the tray closing procedure, if closing action is not completed within 4.5 sec., the procedure moves to opening action. Afterwards if this opening action is not completed within 4.5 sec., the operation halts.
E∗	(1) When the slider moves in REV direction, and if TOC position SW does not become "H" within 3.4 sec., the operation halts. (2) After (1) is completed normally and then the slider moves in the FWD direction, and if TOC position SW does not become "L" within 300 msec., the operation halts. (3) After (2) is completed normally and then the slider moves in the REV direction, and if TOC position SW does not become "H" within 300 msec., the operation halts.
P∗	When Q data is not read in 1 sec. and ATIP data is not read in 1 sec. ,the system tries to read them for 3 times. And when even then both Q data and ATIP data are not read, the operation halts, etc.
C∗	When reading PCA area, searching to playback starting position is failed, then even this is tried twice and the search is not completed, the operation halts. When writing PCA area, the rotation does not reach to the required speed at writing position, so that writing is not possible to start. Or searching to writing starting position is failed and retried for 19 times, as a result that both are incomplete, then the operation halts.
F∗	Once disc discrimination is completed, and focus-in action is failed, then the operation halts.
A∗	If the pick-up jump occurs during recording, and not recovered, then the operation halts. If ATIP data is not to be read for 4 sec. during recording, then the operation halts.
d∗	If PMA writing is not completed within 60 sec., then the operation halts. If reading of TOC and PMA is failed, or missing information is observed in read data, the error occurs. When to start recording and RF signal exists instead at the end edge boundary of disc, the error occurs.

7.1.2 TROUBLE SHOOTING

■ Power isn't turn on. FL display isn't light up. FL display is abnormal.



■ Power ON Sequence



7.1.3 ERROR MEESAGE "CHECK TEMP"

If recording is operated on PDR-609 at high or low temperature atmosphere, a message "CHECK TEMP" is displayed the operation halts.
This message is displayed to indicate clearly the problem that would probably happen to recording and playback operation if the product is placed on a heating object like an amplifier or in a closed space like a rack in which heating object such as an amplifier causes utmost high temperature, and then if the product is moved into different atmosphere then the problem disappears. The temperature sensor which is placed inside of the product becomes +70Åé or higher or -15Åé or lower, the message is displayed. Once this is displayed, all the actions stop. In addition, the product itself has its own temperature rise, outside product threshold temperature would be a little lower. And these temperatures are not the specification values that guarantee the operation.

7.1.4 CD-R DISC MANUFACTURER CODE

PDR-609 has a function to investigate "Manufacturer Code" of CD-R disc. By referring "Lead-in Start Time", which is displayed when the following procedure is performed, to the following table the manufacture becomes clear, judgement whether this is a checked disc or not becomes possible. Remind that in case of CD-R discs label indication is sometimes different from manufacturer's name. By this operation you can announce more exact unchecked disc to your customer. It is worth using.

*Operation procedure

(1) Insert the disc to be investigate the manufacture.
↓
(2) While pushing "MENU/DELETE" key, press "INPUT SELECTOR" key.
↓
(3) Check that DISPLAY indicates "PEC*********" (RID).
↓
(4) Press "INPUT SELECTOR" key for 14 times.
↓
(5) Check that DISPLAY indicates "LIA 97:**:**"
↓
(6) Refer this value to the following table.
↓
(7) Press "STOP" key to end

• Manufacturer Code table

[Operation confirmation media]

Media maker	74, 80, 21 minutes type	63, 18 minutes type
TDK Corporation: 80 minutes type	97:15:00- 04	-
Ritek Co. : 80 minutes type	97:15:10- 19	-
Mitsubishi Chemical Corporation : 80 minutes type	97:15:20- 24	-
Taiyo Yuden Company Limited	97:24:00- 04	97:46:00 - 04
SONY Corporation	97:24:10- 14	-
Hitachi Maxell, Ltd	97:25:20- 24	-
FUJI Photo Film Co.,Ltd	97:26:40- 44	-
Pioneer Video Corporation	97:27:30- 34	97:48:30- 34
Kodak Japan Limited	97:27:45- 49	97:48:15- 19
Mitsui Chemicals, Inc.	97:27:55- 59	97:48:55- 59
Ricoh Company Limited	97:27:65- 69	-
Ritek Co. : 80, 74 minutes type	97:31:00- 09	-
TDK Corporation: 74 minuts type	97:32:00- 04	97:49:00- 04
Mitsubishi Chemical Corporation : 74 minutes type	97:34:20- 24	-

Note:
• The above-mentioned operation confirmation media are done the media change after the product is designed, and when a constant performance cannot be maintained, become outside the support.

[Media outside support]

Media maker	74, 80, 21 minutes type
Seantram Technology Inc.	97:22:15 - 19
Acer Media Technology, Inc	97:22:60 - 64
AMS Technology Inc.	97:25:50 - 54
Xcitek Inc.	97:25:60 - 64
FORNET INTERNATIONAL PTE LTD.	97:26:00 - 04
POSTECH Corporation.	97:26:10 - 19
Lead Data Inc.	97:26:50 - 59
CMC Magnetics Corporation	97:26:60 - 69
DIGITAL STORAGE TECHNOLOGY CO., LTD	97:27:01 - 04
Plasmon Data systems Ltd.	97:27:15- 19
Princo Corporation	97:27:26 - 28
GIGASTORGE CORPORATION	97:28:10 - 19
Multi Media Masters & Machinary SA	97:28:20 - 24
Vanguard Disc Inc.	97:29:10 - 14
Prodisc Technology Inc.	97:32:15 - 19

Note:

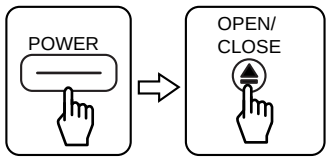
• The disc where the codes other than the above-mentioned were displayed is unconfirmed media.

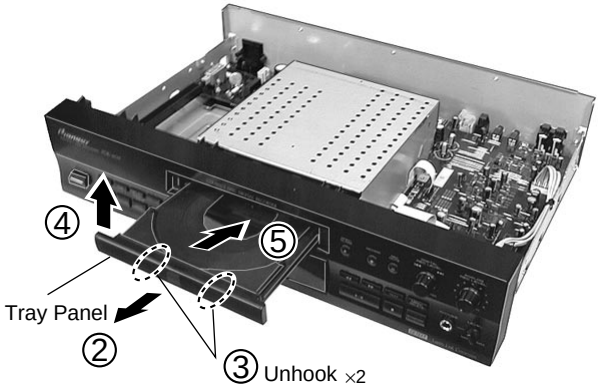
7.1.5 DISASSEMBLY

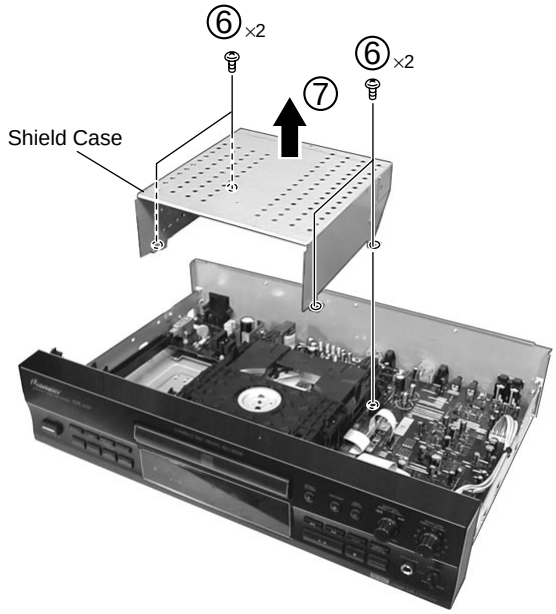
■ CD-R CORE ASSY

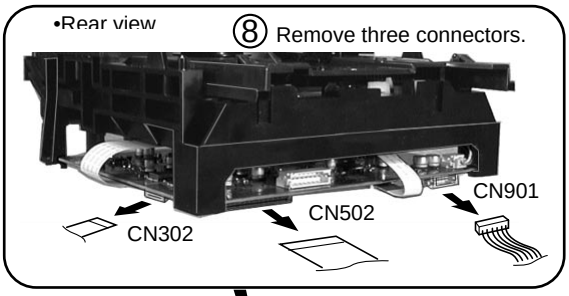
① Remove a Bonnet (six screws).

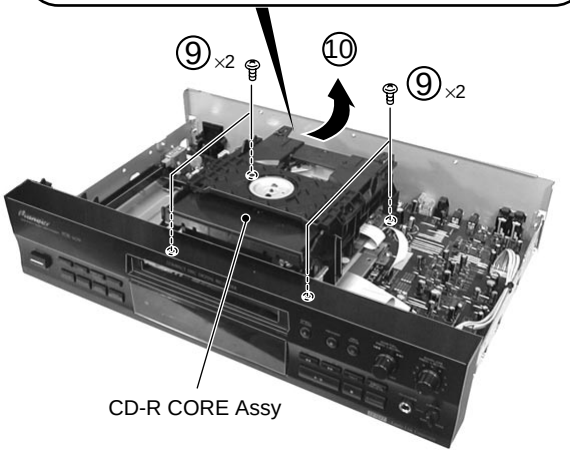
② Tray Open



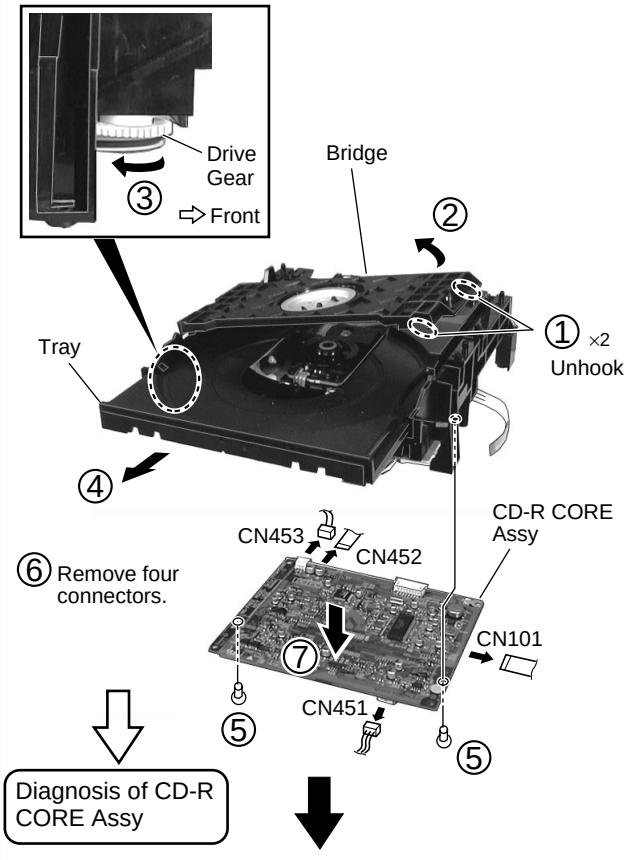


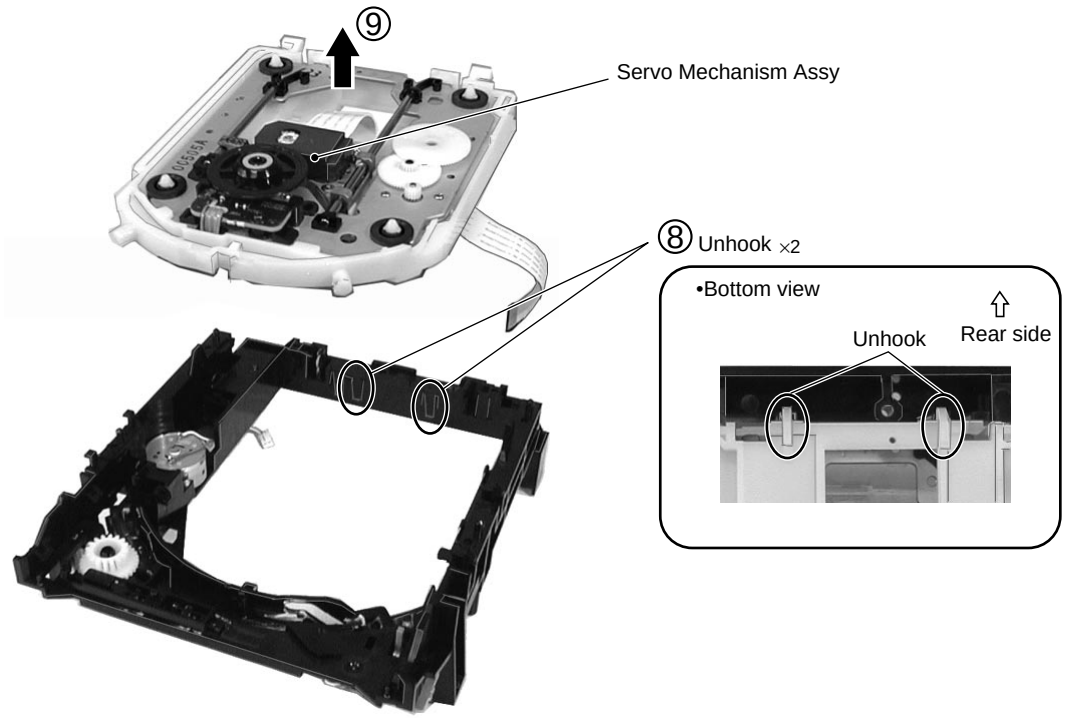






● Servo Mechanism Block



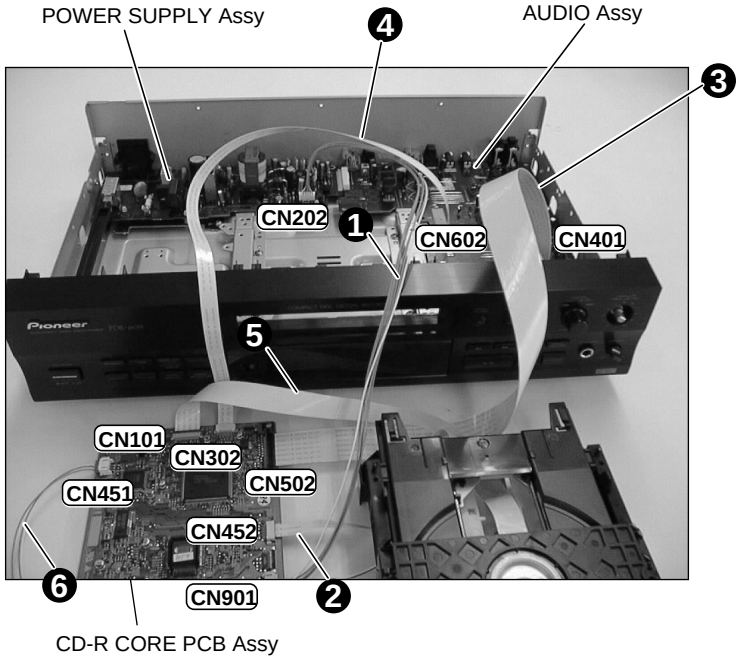


7.1.6 DIAGNOSIS OF CD-R CORE ASSY

When diagnosing the CD-R CORE Assy, use the following Flexible Cables and Connector Assys for service.

① Remove the CD-R CORE Assy. (Refer to the Disassembly of the CD-R CORE Assy and steps ① to ⑦ of the Servo Mechanism Block.

② Replace seven cables (❶ ~ ❻) for service and diagnose it.



• Flexible Cables and Connector Assys for service

CD-R CORE PCB Assy ↔ Other Assys

❶ CN901 ↔ CN202 (POWER SUPPLY Assy)
Connector Assy (6P) : PG06KK-F50

❷ CN452 ↔ CN601 (Servo Mechanism Assy)
8P FFC : PDD1225

❸ CN502 ↔ CN401 (AUDIO Assy)
25P FFC : PDD1227

❹ CN302 ↔ CN602 (AUDIO Assy)
9P FFC : PDD1226

❺ CN101 ↔ CN1 (Pickup)
32P FFC : PDD1224

❻ CN451 ↔ CN101 (LOAB Assy)
Connector Assy (3P) : PG03KK-50

7.2 PARTS

7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

●List of IC

PDC069, PE5190, BA5810FP, AK8567, PDC066

■ PDC069 (CD-R CORE PCB ASSY : IC501)

• Encorder IC

●Pin Function (1/5)

No.	Signal	TYPE	COMMENT
1	DVss	P	Digital system ground (VSS)
2	RA5	O	Address lines for the audio data delay buffer DRAM
3	RA4	O	
4	RA3	O	
5	RA2	O	
6	RA1	O	
7	RA0	O	
8	DVdd	P	Digital system power supply (5V)
9	DVss	P	Digital system ground (VSS)
10	I07	B	Data lines with pull-up resistor for the audio data delay buffer DRAM
11	I06	B	
12	I05	B	
13	I04	B	
14	I03	B	
15	I02	B	
16	DVdd	P	Digital system power supply (3.3V)
17	DVss	P	Digital system ground (VSS)
18	I01	B	Data lines with pull-up resistor for the audio data delay buffer DRAM
19	I00	B	
20	I015	B	
21	I014	B	
22	I013	B	
23	I012	B	
24	I011	B	
25	I010	B	
26	I09	B	
27	I08	B	
28	DVdd	P	Digital system power supply (5V)
29	ENCCK1T	O	1T clock output for write strategy (4.3218MHz when x1-speed)
30	EFMIN	I	EFM signal for recoding directly.
31	PUSEL	I	Pickup select (0 : SANYO method、1 : PIONEER method)
32	EFMG	O	EFM output control signal
33	WRITE	I	Write Strategy signal control
34	DVdd	P	Digital system power supply (3.3V)
35	DVss	P	Digital system ground (VSS)
36	CMOD	O	Write Strategy output signal
37	REWLDON	O	
38	WLDON	O	
39	CFREQ	O	
40	SSP2	O	Servo sampling pulse output

●Pin Function (2/5)

No.	Signal	TYPE	COMMENT
41	SSP1	O	Servo sampling pulse output
42	RAPC	O	Laser sampling pulse output
43	WAPC	O	
44	H11TO	O	Running OPC Sampling pulse
45	LDH	O	Recoding LD control signal
46	ATEST3	O	Analog block test output
47	ATEST1	O	
48	WDAT	O	Recoding LD control signal
49	NWDAT	O	Recoding LD control signal
50	DVdd	P	Digital system power supply (5V)
51	DVss	P	Digital system ground (Vss)
52	AVdd	P	Analog system power supply 3.3V (Write Strategy)
53	AVss	P	Analog system ground (Vss)
54	R1	I	Write Strategy analog signal
55	VCNT1	I	
56	MDC1	O	
57	PDO1	O	
58	ENCCKOUT	O	RF processor clock output (34.5744MHz or 17.2872MHz)
59	CDCKOUT2	O	CD decoder clock output (33.8688MHz or 16.9344MHz)
60	CDCKOUT	O	CD decoder clock output (33.8688MHz or 16.9344MHz)
61	DVss	P	Digital system ground (Vss)
62	DACCKOUT	O	External D/A converter clock output (33.8688MHz or 16.9344MHz)
63	ADCCKOUT	O	External A/D converter clock output (33.8688MHz or 16.9344MHz)
64	DVdd	P	Digital system power supply (5V)
65	AUXMCKIN	I	External clock input
66	XTALCK	I	Crystal oscillator circuit input (33.8688MHz)
67	XTAL	O	Crystal oscillator circuit output
68	AVdd	P	Analog system power supply 3.3V (PLL)
69	AVss	P	Analog system ground(Vss) (PLL)
70	PDOO	O	PLL analog signals
71	VCNTO	I	
72	RO	I	
73	ROUT	O	Internal D/A converter output
74	AVdd	P	Analog system power supply 5V (Internal D/A converter)
75	AVss	P	Analog system ground(Vss) (Internal D/A converter)
76	LOUT	O	Internal D/A converter output
77	DACBCK	O	Internal D/A converter BCK signal output
78	DACDATA	O	Internal D/A converter DATA signal output
79	DACLRCK	O	Internal D/A converter LRCK signal output
80	DVdd	P	Digital system power supply 3.3V
81	DVss	P	Digital system ground (Vss)
82	ADCSTBY	O	External A/D converter standby signal output
83	ADCBCK	O	External A/D converter BCK signal output
84	ADCLRCK	O	External A/D converter LRCK signal output
85	ADCDATA	I	External A/D converter DATA signal input
86	DVdd	P	Digital system power supply 5V
87	DVss	P	Digital system ground (Vss)
88	AUXBCK	I	External BCK signal input

●Pin Function (3/5)

No.	Signal	TYPE	COMMENT
89	AUXDATA	I	External DATA signal input
90	AUXLRCK	I	External LRCK signal input
91	AUXTX	I	DIT DATA signal input
92	Reserve0	O	Reserved
93	Reserve1	O	
94	Reserve2	O	
95	Reserve3	O	
96	Reserve4	O	
97	Reserve5	O	
98	Reserve6	O	
99	Reserve7	O	
100	Reserve8	O	
101	Reserve9	O	
102	DVdd	P	Digital system power supply (5V)
103	SRSTNBY	I	Internal SRAM standby signal input.
104	AVdd	P	Analog system power supply(3.3V) (Internal SRAM)
105	AVss	P	Analog system power supply(Vss) (Internal SRAM)
106	MON1	O	Monitor outputs
107	MON2	O	
108	MON3	O	
109	MON4	O	
110	TEST0	I	TEST signal inputs These pins must be tied to ground (VSS) in normal operation.
111	TEST1	I	
112	TEST2	I	
113	TEST3	I	
114	TEST4	I	
115	TESTIN	I	
116	TESTOUT	O	TEST signal output : This pin must be open in normal operation.
117	DITOUT	O	DIT data output
118	DVdd	P	Digital system power supply (3.3V)
119	DVss	P	Digital system ground (Vss)
120	DVdd	P	Digital system power supply (5V)
121	DVss	P	Digital system ground (Vss)
122	ZRFDET	I	RF detection signal input
123	EFMSYNC	O	7.35kHz(x1)
124	SUBSYNC	O	Subcode synchronization signal
125	FGIN	I	CAV servo FG input
126	SPDO	O	Spindle output
127	CRCOK	O	ATIP-CRC checked result output
128	ATIPSYNC	O	ATIPSYNC signal output
129	BIDATA	B	Bi-phase data input and output signal
130	BICLK	B	Bi-phase clock input and output signal
131	WOBBLE	I	WOBBLE Bi-phase signal
132	DVdd	P	Digital system power supply (3.3V)
133	DVss	P	Digital system ground (Vss)
134	CDBCK	I	CD BCK input

●Pin Function (4/5)

No.	Signal	TYPE	COMMENT
135	CDDATA	I	CD serial data input
136	CDLRCK	I	CD LRCK input
137	CDTX	I	DIT data input
138	DVdd	P	Digital system power supply (5V)
139	DVss	P	Digital system ground (Vss)
140	ENCERR	O	Encoder error signal output
141	JITERR	O	CJS error signal output
142	DIRERR	O	PLL lock and data error signal output
143	AVss	P	Analog system ground(Vss) (CJS block)
144	AVdd	P	Analog system power supply(3.3V) (CJS block)
145	JITPCO	O	PLL, phase and frequency comparator output
146	JITLPFI	I	PLL, low pass filter input
147	JITLPFO	O	PLL, low pass filter output
148	JITVCOIN	I	PLL, VCO clock input
149	AVss	P	Analog system ground(Vss) (CJS block)
150	AVdd	P	Analog system power supply(5V) (CJS block)
151	DIRRS	I	VCO gain control input
152	DIRVCO	I	VCO free running oscillator frequency control input
153	DIRLPF	O	Loop filter setting
154	AVdd	P	Analog system power supply(3.3V) (DIR block)
155	AVss	P	Analog system ground(Vss) (DIR block)
156	DVdd	P	Digital system power supply (5V)
157	DVss	P	Digital system ground (Vss)
158	DIN1	I	Digital data inputs
159	DIN2	I	
160	DIN3	I	
161	DIN4	I	
162	DVdd	P	Digital system power supply (3.3V)
163	SUA0	I	Command resister selection address
164	SUA1	I	
165	SUA2	I	
166	SUA3	I	
167	SUA4	I	
168	SUA5	I	
169	SUA6	I	
170	SUA7	I	
171	ZINT	O	Interrupt request output to the micro controller
172	DVdd	P	Digital system power supply (5V)
173	DVss	P	Digital system ground (Vss)
174	DVdd	P	Digital system power supply (3.3V)
175	DVss	P	Digital system ground (Vss)

●Pin Function (5/5)

No.	Signal	TYPE	COMMENT
176	D0	B	Micro controller data lines with Pull up resister
177	D1	B	
178	D2	B	
179	D3	B	
180	D4	B	
181	D5	B	
182	D6	B	
183	D7	B	
184	ZRD	I	Micro controller data read signal input
185	ZWR	I	Micro controller chip select signal input
186	ZCS	I	Micro controller data write signal input
187	ZRESET	I	System reset
188	DVdd	P	Digital system power supply (3.3V)
189	DVss	P	Digital system ground (Vss)
190	DVdd	P	Digital system power supply (5V)
191	DVss	P	Digital system ground (Vss)
192	Reserve10	O	Reserve
193	Reserve11	O	
194	SBDATA	B	Subcode interface serial data signal
195	CLCK	B	Subcode interface data shift clock signal
196	SFSY	B	Subcode interface frame sync signal
197	SBSY	B	Subcode interface block sync signal
198	DVdd	P	Digital system power supply (5V)
199	DVss	P	Digital system ground (Vss)
200	ZWE	O	Write Enable signal output for the audio data delay buffer DRAM
201	ZRAS	O	RAS signal output for the audio data delay buffer DRAM
202	ZCAS	O	CAS signal output for the audio data delay buffer DRAM
203	ZOE	O	Read Enable signal output for the audio data delay buffer DRAM
204	ZINT2	O	Interrupt request output to the micro controller
205	RA8	O	Address lines for the audio data delay buffer DRAM
206	RA7	O	
207	RA6	O	
208	DVdd	P	Digital system power supply (5V)

■ PE5190A (CD-R CORE PCB ASSY : IC301)

• **Mechanism Control IC**

●**Pin Function (1/2)**

No.	Mark	Pin Name	I/O	Pin Function
1	P32/XCLK0/SCL	MSCK	I/O	Serial transfer clock output of clock synchronous system
2	P33/SO0/SDA	MSO	I/O	Serial transfer data output of clock synchronous system
3	P34/TO0	SREQ	I	Serial hand shake to the system control IC input
4	P35/TO1	MACK	O	Serial hand shake to the system control IC output
5	P36/TO2	EECS	O	Enable output for EEPROM access
6	P37/TO3	XECE	O	Enable output for reading the jig for test
7	XRESET	XRESET	I	Reset input (L: Reset)
8	VDD1	Vdd1	–	+5V
9	X2	X2	–	Crystal input for system clock (32MHz)
10	X1	X1	–	Crystal output for system clock (32MHz)
11	VSS1	Vss1	–	GND
12	P00	APCDAC0	O	NC
13	P01	APCDAC1	O	NC
14	P02	APCDAC2	O	NC
15	P03	PW0	O	Recording laser power monitor Output (0)
16	P04	PW1	O	Recording laser power monitor Output (1)
17	P05	PW2	O	Recording laser power monitor Output (2)
18	P06	PW3	O	Recording laser power monitor Output (3)
19	P07	PW4	O	Recording laser power monitor Output (4)
20	P67/XREFRQ/HLDAK	XRW	O	CD-RWreversing output (CD/CD-R: H, CD-RW: L)
21	P66/XWAIT/HLDRQ	CLOKDEC	O	CLOCK output for CXD2585Q command
22	P65/XWR	XWR	O	Strobe signal output for read operation of the external memory
23	P64/XRD	XRD	O	Strobe signal output for write operation of the external memory
24	P63/A19	XLATDEC	O	Latch output of CXD2585Q command
25	P62/A18	CLOKRF	O	When communicating output AK8567 exclusive use clock (CXD2585 ("H" fixation) (AKCLOCK)
26	P61/A17	DATA	O	CXD2585Q/AK8567 common DATA output
27	P60/A16	XLATRF	O	LATCH output for AK8567 command
28	P57/A15	XTERST	O	Tracking error envelope detection reset output
29	P56/A14	ECLV	O	Spindle servo EFMCLV mode switch output
30	P55/A13	CLV	O	Spindle servo CAV and WOBBLE CLV mode switch output
31	P54/A12	GAINUP	O	GAIN set switch output for CD-RW (CD-RW="H")
32	P53/A11	AGCON	O	WOBBLE extraction AGC circuit ON/OFF switch output
33	P52/A10	CDROPC	O	Signal output for AC circuit control for CD-R running OPC
34	P51/A9	LDON	O	LASER DIODE ON/OFF output (ON="H")
35	P50/A8	LRST	O	Reset output for the servo and digital system ICs (L: Reset)
36	P47/AD7	AD7	O	Data address line
37	P46/AD6	AD6		
38	P45/AD5	AD5		
39	P44/AD4	AD4		
40	P43/AD3	AD3		

●Pin Function (2/2)

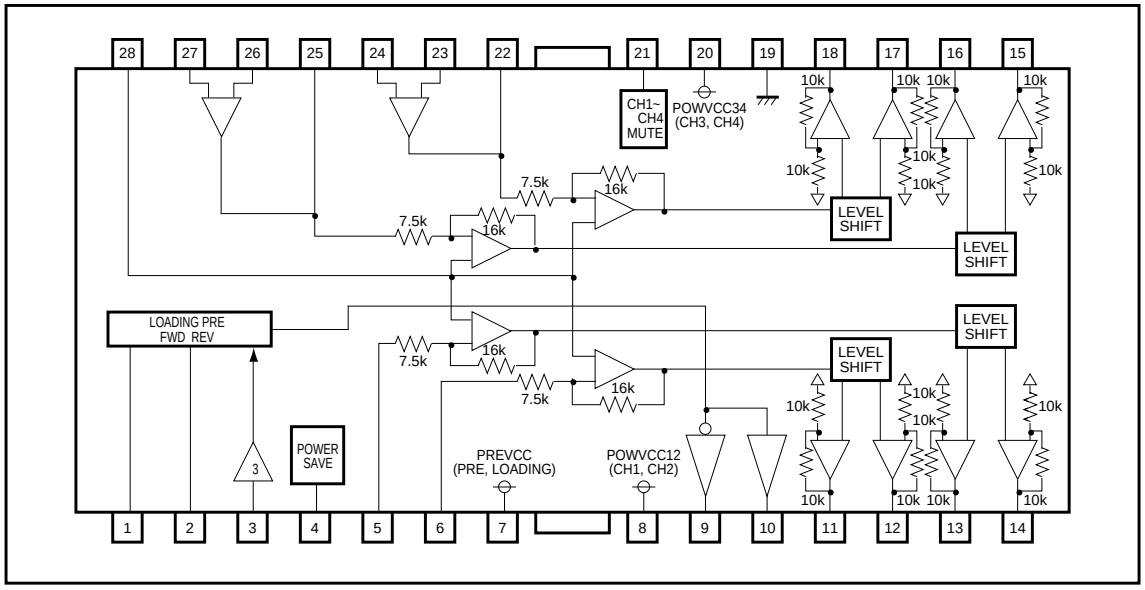
No.	Mark	Pin Name	I/O	Pin Function
41	P42/AD2	AD2	O	Data address line
42	P41/AD1	AD1		
43	P40/AD0	AD0		
44	ASTB/CLKOUT	ASTB	O	External latch signal of lower address signal for external memory access
45	Vss0	GND	–	GNDD
46	TEST	GND	–	GNDD
47	P10/PWM0	VWDSW	O	Laser driver time constant switch output for WRITE (H:ON,L:OFF)
48	P11/PWM1	TMODE	O	TEST MODE output (TEST MODE:H)
49	P12/ASCK2/XSCK2	QCLK	O	CLOCK output CXD2585Q sub-Q reading
50	P13/RXD2/SI2	QDATA	I	DATA output CXD2585Q sub-Q reading
51	P14/TXD2/SO2	N.C	O	-
52	P15	XRFDET	I	EFM playback RF detection
53	P16	FOK	I	FOCUS OK input (L: Focus OK)
54	P17	XCD	O	CD/other switch output (CD="L")
55	Vdd0	Vdd0	–	+5V
56	P70/ANI0	MPXTEST	I(A)	AK8567 MPX input (various data for servo system adjustment)
57	P71/ANI1	WRFPH	I(A)	A OUT input (running OPC)
58	P72/ANI2	WRFSH	I(A)	B OUT input (running OPC)
59	P73/ANI3	TERM	I(A)	Temperature sensor input
60	P74/ANI4	RFB	I(A)	Playback RF lower side envelope input
61	P75/ANI5	RFT	I(A)	Playback RF upper part envelope input
62	P76/ANI6	M11	I(A)	CDRMR1 (RF upper part (envelope without coupling) input
63	P77/ANI7	TRAY	I(A)	LOADING POSITION input (OPEN="L")
64	Avdd	Avdd	–	+5V
65	Avref1	Avref1	–	+4.5V
66	Avss	Avss	–	GNDA
67	ANO0	VWDC2	O(A)	CD-R OverDrive/CD-RW record power output (0)
68	ANO1	DA1	O(A)	CD-R OverDrive/CD-RW record power output (1)
69	Avref2	AVref2	–	+4.5V
70	Avref3	AVref3	–	GNDA
71	P20/NMI	XPFAIL	I	Power failure detection
72	P21/INTP0	XINT1	I	The EFM ENCODER SYNC1 detection
73	P22/INTP1	XINT2	I	The EFM ENCODER SYNC1 detection
74	P23/INTP2/C1	ATIPSYNC	I	ATIP FLAME SYNC detection
75	P24/INTP3	SCOR	I	EFM DECODER FLAME SYNC detection
76	P25/INTP4/ASCK	FG	I	SPINDLE FG detection
77	P26/INTP5	SENS	I	SENS input
78	P27/SI0	MSI	I	Synchronous serial transfer data input
79	P30/RXD/SI1	SCLK	O	CLOCK output for SONY CXD2585Q serial READ OUT reading
80	P31/TXD/SO1	N.C	O	-

Note: (A) in item I/O shows "ANALOG".

■ BA5810FP (CD-R CORE PCB ASSY : IC451)

- **5 Channel Driver IC**

●Block Diagram



●Pin Function

No.	Pin Name	Pin Function	No.	Pin Name	Pin Function
1	FWD	Input for loading forward	15	V04(+)	Not inverted output of CH4
2	REV	Input for loading reverse	16	V04(-)	Inverted output of CH4
3	LDCONT	Output control terminal for loading	17	V03(+)	Not inverted output of CH3
4	PS	Control terminal for power saving mode	18	V03(-)	Inverted output of CH3
5	IN1	Input of CH1	19	GND	Substrate GND terminal
6	IN2	Input of CH2	20	POWVCC34	power supply input terminal (CH3, CH4)
7	PREVCC	Pre and loading power steps power supply input terminal	21	MUTE	Input for mute control terminal
8	POWVCC12	Power supply input terminal (CH1, CH2)	22	OPOUT3	Output of CH3 OP-AMP
9	VOL(-)	Inverted output of loading	23	OPIN3(-)	Inverting input of CH3 OP-AMP
10	VOL(+)	Not inverted output of loading	24	OPIN3(+)	Not inverting input of CH3 OP-AMP
11	V02(-)	Inverted output of CH2	25	OPOUT4	Output of CH4 OP-AMP
12	V02(+)	Not inverted output of CH2	26	OPIN4(-)	Inverting input of CH4OP-AMP
13	V01(-)	Inverted output of CH1	27	OPIN4(+)	Not inverting input of CH4 OP-AMP
14	V01(+)	Not inverted output of CH1	28	BIAS	Input of Bias-amplifier

■ AK8567 (CD-R CORE PCB ASSY : IC101)

• RF Processor

●Pin Function (1/2)

Pin Number	Pin Name	I/O	Functions
1	AVDD3	I	Analog Positive Power Source Pin
2	BCENT	O	Center Signal Output Pin
3	PHBETA	O	β Signal Top Level Output Pin
4	BHBETA	O	β Signal Bottom Level Output Pin
5	PHBTC	O	External Capacitor Connector Pin for PHBETA Droop Rate Setting
6	BHBTC	O	External Capacitor Connector Pin for BHBETA Droop Rate Setting
7	MPP	O	Main Push-Pull Signal Output Pin
8	TEIN	I	Input Pin for Tracking Signal Processing Circuit
9	TE	O	Tracking Error Signal Output Pin
10	FE	O	Focus Error Signal Output Pin
11	SBAD	O	SBAD Signal Output Pin
12	TZCLVL	I	Comparate Level Input Pin for Tracking Zero Cross
13	VREF	I/O	Decoupling Pin for Internal Reference Voltage/Reference Voltage Input Pin
14	AGND1	O	Decoupling Pin for Internal Reference Voltage
15	BIAS	O	Bias Resistance Connector Pin (BIAS=4.7kΩ)
16	VSS	I	Analog Ground Pin
17	FVREF	I	Reference Voltage Input Pin for APC
18	FPDO	I	Laser Monitor Output Pin
19	RREF	I/O	Power Setting Voltage Input Pin for Read APC/Built-in DAC Setting Voltage Output Pin
20	VRDC	O	Laser Driver Control Output Pin for Read
21	VRDCN	I	Laser Driver Control Amp. (-) Pin for Read
22	VRDCN2	I	Laser Driver Time Constant Setting Pin for Read
23	WREF	I/O	Power Setting Voltage Input Pin for Write APC/Built-in DAC Setting Voltage Output Pin
24	WDAO	O	Power Setting for Write APC Built-in DAC Voltage Output Pin
25	AVDD2	I	Analog Positive Power Source Pin
26	AVSS2	I	Analog Ground Pin
27	VWDC	O	Laser Driver Control Output Pin for Write
28	VWDCN2	I	Laser Driver Time Constant Setting Pin for Write
29	VWDCN	I	Laser Driver Control Amp. (-) Pin for Write
30	ATFM	O	Wobble Signal Output Pin
31	AGC1C	O	External Capacitor Connection Pin for AGC1 Response Speed Setting
32	AGC2C	O	External Capacitor Connection Pin for AGC2 Response Speed Setting
33	AGC3C	O	External Capacitor Connection Pin for AGC3 Response Speed Setting
34	AGND2	O	Decoupling Pin for Internal Reference Voltage
35	VSS	I	Analog Ground Pin
36	SGAINDN	I	Gain Switch Control Signal Input Pin
37	GAINUP	I	CD-RW Switch Control Signal Input Pin
38	AGCON	I	Wobble AGC Enable Signal Input Pin ("H"AGC ON, "L"AGC Reset)
39	ATFG	O	ATIP FG (Digital Wobble Signal) Output Pin
40	XTOR	O	Tracking Amplitude Detection Signal Output Pin
41	XTAND	O	Off Tracking Detection Signal Output Pin
42	TZC	O	Tracking Zero Cross Detection Signal Output Pin
43	RECD2	O	Recorded Area Detection Signal Output Pin 2 ("H"Recorded, "L"Unrecorded)
44	RECD1	O	Recorded Area Detection Signal Output Pin 1 ("H"Recorded, "L"Unrecorded)
45	RC	O	RC Signal Output Pin
46	DFCT	O	DFCT Signal Output Pin
47	MIRR	O	MIRR Signal Output Pin
48	MCLK1	I	Main Clock Input Pin 1 (Input Sine Wave)
49	MCLK2	I	Main Clock Input Pin 2 (Input Sine Wave)
50	DVSS	I	Digital Ground Pin

●Pin Function (2/2)

Pin Number	Pin Name	I/O	Functions
51	DVDD	I	Digital Power Source Pin
52	FOK	O	FOK Signal Output Pin
53	RZC	O	RF Zero Cross Detection Signal Output Pin
54	MPDSH	O	Sample Pulse Input Pin for Main Beam Signal ("H"Sample, "L"Hold)
55	SPDSH	I	Sample Pulse Input Pin for Side Beam Signal ("H"Sample, "L"Hold)
56	RFPDSH	I	Sample Pulse Input Pin for Read APC ("H"Sample, "L"Hold)
57	WFPDSH	I	Sample Pulse Input Pin for Write APC ("H"Sample, "L"Hold)
58	WLDON	I	Write Laser Diode Control Signal Input Pin ("L"Write APC Setting to Zero, "H"Laser Diode ON)
59	RLDON	I	Read Lase Diode Control Signal Input Pin ("L"Read APC Setting to Zero, "H"Laser Diode ON)
60	SPBLVL	I	BLEVEL Signal Sample Pulse Input Pin ("H"Sample, "L"Hold)
61	SPRFTR	I	WRFTR Signal Sample Pulse Input Pin ("H"Sample, "L"Hold)
62	VWDSW	I	Laser Driver Time Constant Switch Control Signal Input Pin for Write ("H"ON, "L"OFF)
63	VRDSW	I	Laser Driver Time Constant Switch Control Signal Input Pin for Read ("H"ON, "L"OFF)
64	RSBETA	I	β Measurement Circuit Reset Pin ("H" PHBETA,BHBETA Output to Reset)
65	SCLK	I	Clock Input Pin for Register Setting
66	SDATA	I	Data Input pin for Register Setting
67	XLAT	I	Latch Signal Input Pin for Register Setting
68	XRST	I	Register Reset pin ("L"Initialize Registers)
69	VSS	I	Analog Ground Pin
70	OSTCC	O	External CAP Connector Pin for EQ Output Offset Cancelor fc Setting
71	AGCC	O	External CAP Connector Pin for RFAGC Response Speed Setting
72	PHD2C	O	External CAP Connection Pin for P/H2 Droop Rate Setting
73	RCCMPI	I	Comparator Input Pin for RC Detection
74	PBHO	O	RRF Signal Bottom/Top Level Output Pin
75	AVDD1	I	Analog Positive Power Source Pin
76	AVSS1	I	Analog Ground Pin
77	RRFTOP	O	RRF Signal Peak Level Output Pin
78	RRFBTM	O	RRF Signal Bottom Level Output Pin
79	NC	-	
80	EQRF	O	Equalizer Filter Output Pin
81	NC	-	
82	AUX1	I	Auxiliary Input Pin for Signal Monitoring 1
83	AUX2	I	Auxiliary Input Pin for Signal Monitoring 2
84	AUX3	I	Auxiliary Input Pin for Signal Monitoring 3
85	MPXOUT	O	Multiplexer Output Pin for Signal monitoring
86	RRFVC	I	Level Shift Voltage Input Pin for RRF Signal
87	RECDIN	I	RF Input Pin for Recorded Area Detection
88	RRF	O	Read RF Signal Output Pin
89	WRF	O	Write RF Signal Output Pin
90	VSS	I	Analog Ground Pin
91	AIN	I	Main Beam Signal (A) Input Pin
92	BIN	I	Main Beam Signal (B) Input Pin
93	CIN	I	Main Beam Signal (C) Input Pin
94	DIN	I	Main Beam Signal (D) Input Pin
95	EIN	I	Side Beam Signal (E) Input Pin
96	FIN	I	Side Beam Signal (F) Input Pin
97	GIN	I	Side Beam Signal (G) Input Pin
98	HIN	I	Side Beam Signal (H) Input Pin
99	HAVC	I	Main/Side Beam Signal Reference Voltage Input Pin
100	AVSS3	I	Analog Ground Pin

NC pin is connected to VSS.

■ PDC066 (OPERATING ASSY : IC701)

• **System microcomputer**

●Pin Function (1/2)

No.	Pin Name	Type	Pin Function
1	TEXT SYNC CONTRL	O	Remote control crimp control terminal for TEXT synchronized
2	NC	O	-
3	WEN/WD1	I/O	Terminal for flash writing (ENA/DATA)
4	WD0	I/O	Terminal for flash writing (DATA)
5	CLK	I	Terminal for flash writing (CLOCK)
6	TEXT SR	O	Remote control crimp output terminal for TEXT synchronized
7	SREQ	O	Mechanism communication beginning REQ output
8	NC	O	-
9	NC	O	-
10	NC	O	-
11	RESET (XPFAIL)	-	Reset terminal
12	TEST	I	Test mode (0V: usually , 5V :Adjustment mode)
13	NC	O	-
14	VSS	-	GND
15	CF1	-	Ceramic departure pendulum (10MHz)
16	CF2	-	Ceramic departure pendulum
17	VDD	-	VDD
18	KEY IN1	I	Key input (A/D conversion)
19	KEY IN2	I	Key input (A/D conversion)
20	KEY IN3	I	Key input (A/D conversion)
21	R-EN1	I	Remote control input of rotary encoder 1 input
22	R-EN2	I	Remote control input of rotary encoder 2 input
23	NC	O	-
24	NC	O	-
25	NC	O	-
26	NC	O	-
27	REMIN	I	-
28	MACK	I	Communication request terminal from mechanism
29	NC	O	-
30	NC	-	-
31 I 45	G15 I G1	-	Output terminal for VFD digit
46	VDD3	-	VDD
47 I 50	P1 I P4	O	Output terminal for VFD segment
51	VP	-	GND
52	P5	O	Output terminal for VFD segment
I	I		
71	P24		

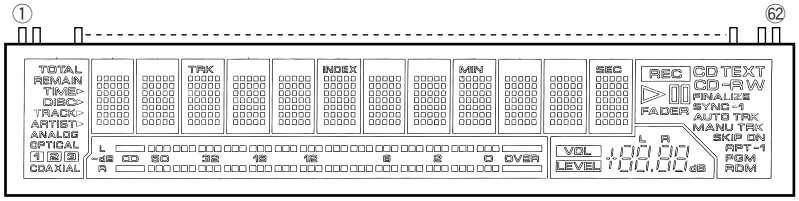
●Pin Function (2/2)

No.	Pin Name	Type	Pin Function
72	VDD	-	VDD
73 I 84	P25 I P36	O	Output terminal for VFD segment
85	LED2	O	Finalize LED
86	LED1	O	Monitor LED
87	XOPT	O	Optical input control output terminal
88	XRST	O	Mechanism control reset output terminal
89	VSS	-	GND
90	VDD	-	VDD
91	HI- BIT	I	There is the model switch "It is H" Hi bit.
92	LEGATO	I	There is the model switch "It is H" legato link.
93	DEMO	I	There is a mode for the model switch "It is H" demonstration.
94	609 or SYSTEM	I	Model switch PDR-609 is fixed "H".
95	MCOMDATAO	O	Mechanism control communication DATA OUT.
96	MCOMDATAI	I	Mechanism control communication DATA IN.
97	MCOMCLK	O	Mechanism control communication clock.
98	SDA	I/O	EEPROM data OUT/IN
99	NC	O	-
100	SCL	O	EEPROM clock

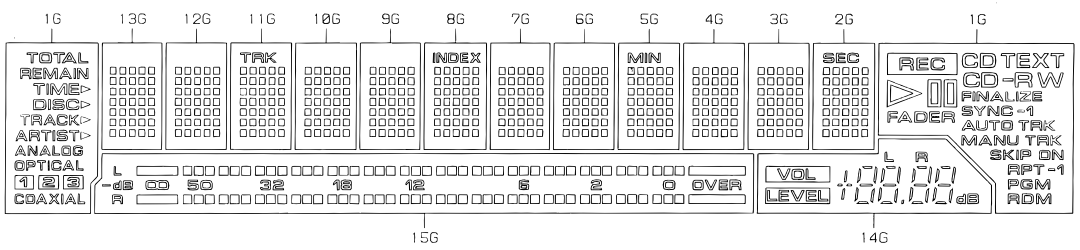
7.2.2 DISPLAY

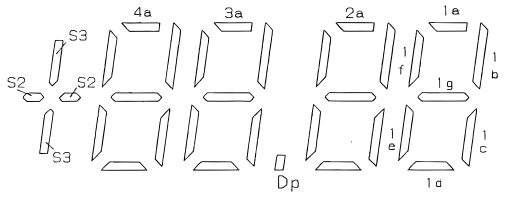
■ PEL1101 (OPERATING ASSY : V701)

• FL TUBE



• Grid Assignment





(14G)

• Pin Connection

PIN NO.	54 09	44 87	44 65	44 43	44 21	44 09	33 87	33 65	33 43	33 21	33 09	22 87	22 65	22 43	22 21	22 09	11 87	11 65	11 43	11 21	11 09	87	65	54	32	21
CONNECTION	76 66	65 66	54 66	43 66	32 66	21 66	P 12	P 34	P XX	N XX	N 56	P 78	P 90	P 01	P 23	P 45	P 67	P 89	P 01	P 23	P 45	P 67	P 89	P 01	P 23	P 45	P 67	P 89	P 01	P 23	P 45	P 67	P 89	P 01	P 23	P 45	P 67	P 89	N P	N P	F 1	F 1

PIN NO.	62 21	61 09	58 87	57 65	56 43	55 21	54 09	32	31
CONNECTION	F 2	F 2	N P	N P	1 5 6	1 4 6	1 3 6	1 2 6	1 1 6	0 9 6	0 8 6

NOTE 1) F1,F2 --- Filament
2) NP ------ No pin
3) NX ------ No extend pin
4) DL ------ Datum Line
5) 1G~15G --- Grid

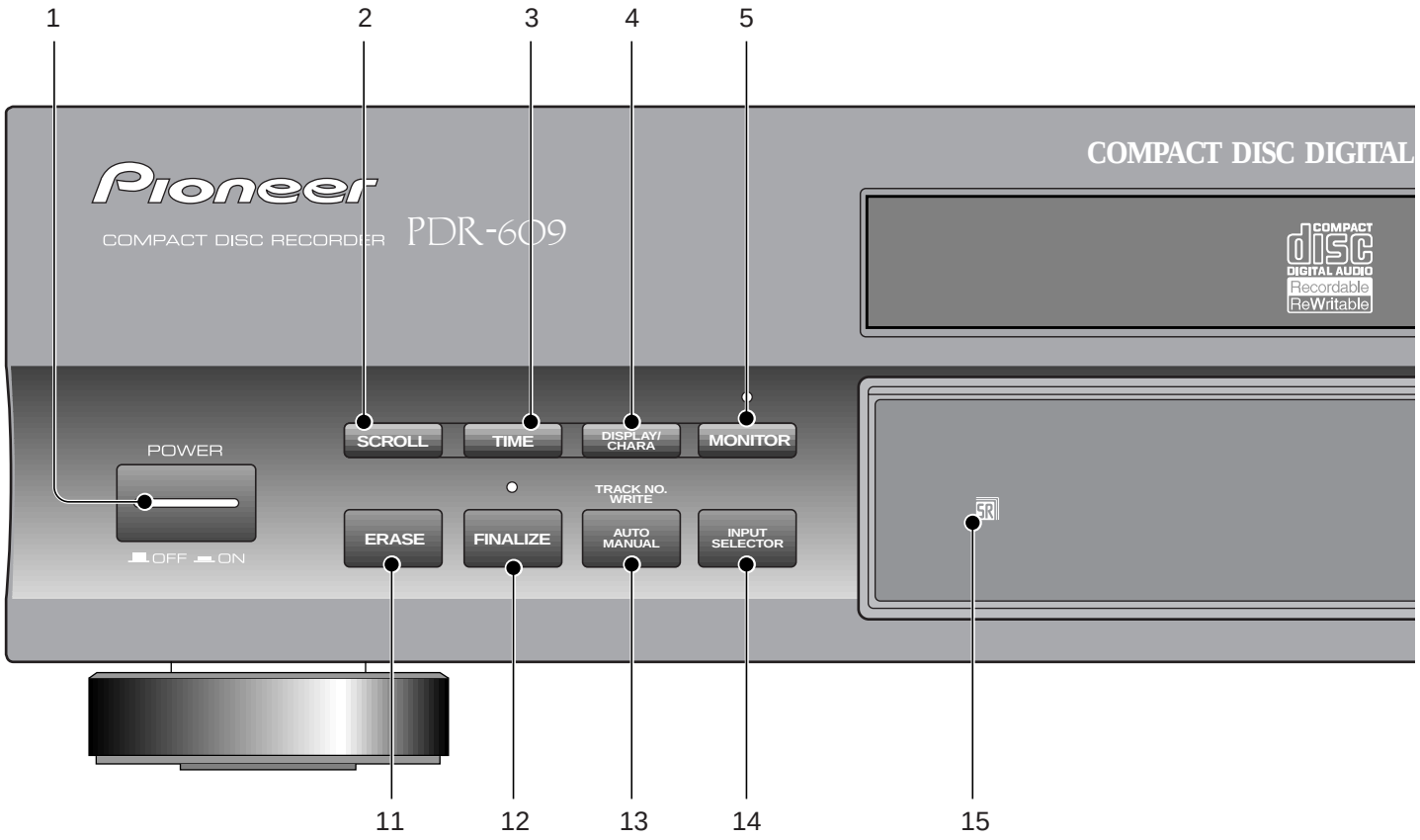
• Anode Connection

	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	B1	VOL	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	REC
P2	B2	LEVEL	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	⏸
P3	B3	1a	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	▷
P4	B4	1b	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	CD TEXT
P5	B5	1f	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	FADER
P6	B6	1g	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	CD
P7	B7	1c	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	-R
P8	B8	1e	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	W
P9	B9	1d	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	FINALIZE
P10	B10	dB	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	SYNC
P11	B11	2a	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	-1 (SYNC)
P12	B12	2b	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	AUTO TRK
P13	B13	2f	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	MANU TRK
P14	B14	2g	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	SKIP
P15	B15	2c	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	ON
P16	B16	2e	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	RPT
P17	B17	2d	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	-1 (RPT)
P18	B18	Dp	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	PGM
P19	B19	R	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	RDM
P20	B20	L	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	TOTAL
P21	B21	3a	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	REMAIN
P22	B22	3b	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	TIME▷
P23	B23	3f	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	DISC▷
P24	B24	3g	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	TRACK▷
P25	B25	3c	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	ARTIST▷
P26	B26	3e	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	ANALOG
P27	B27	3d	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	OPTICAL
P28	B28	4a	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	1
P29	B29	4b	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	2
P30	B30	4f	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	3
P31	B31	4g	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	COAXIAL
P32	B32	4c	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	–
P33	OVER	4e	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	–
P34	S1	4d	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	–
P35	–	S2	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	–
P36	–	S3	–	–	TRK	–	–	INDEX	–	–	MIN	–	–	SEC	–

8. PANEL FACILITIES AND SPECIFICATIONS

8.1 PANEL FACILITIES

Front Panel



1 POWER switch

Switches power to the unit on and off.

2 SCROLL

Press to scroll through long names in CD text.

3 TIME

Switches the display mode (elapsed track time, remaining track time, total disc playing time, etc.)

4 DISPLAY/CHARA

Press to switch between display modes (disc title, artist name, track title), and between upper- and lower-case characters while using CD text.

5 MONITOR

Press to monitor the selected input and display digital source information.Indicator lights up to remind you when you are monitoring.

6 OPEN/CLOSE ⏏

Press to open or close the disc tray.

7 RECORD ●

Press to enter record-pause mode for setting input levels, etc.

8 REC MUTE

Records a blank section on a disc (for space between tracks, etc.)

9 DIGITAL REC LEVEL / ⏮ ⏭ (Jog dial)

Turn the jog dial to: set the digital recording level ; skip tracks; select options in the menu ; cycle through characters in CD text ; select tracks to erase .

Push the jog dial to: start playback (stop mode only) ; input track numbers (during programming) ; select characters in CD text ; confirm menu settings .

10 ANALOG REC LEVEL

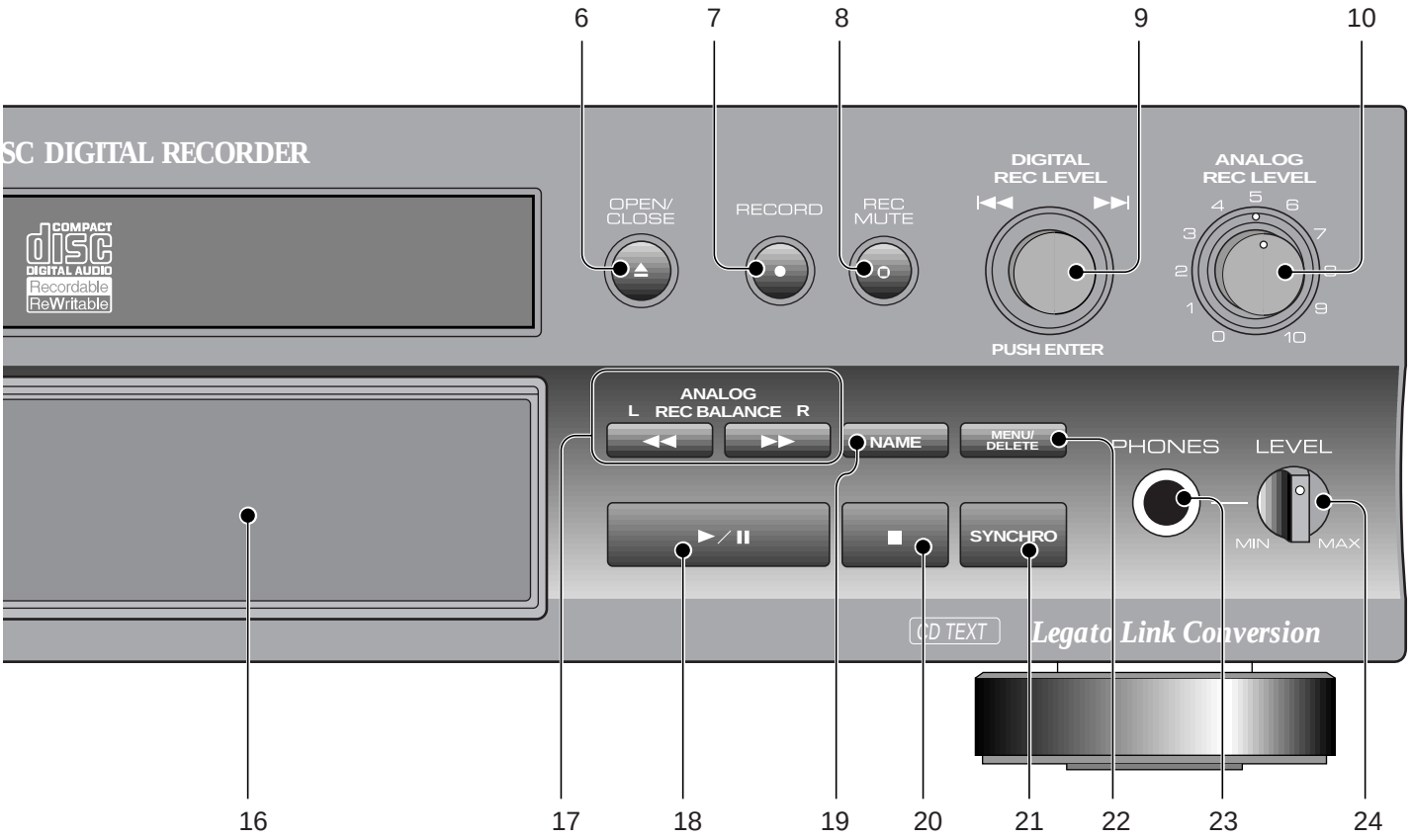
Sets the recording level for analog-input recording.

11 ERASE

Press to start erasing tracks, or to re-initialize a disc.

12 FINALIZE

Press to start the disc finalization process (to make recordable CDs playable on ordinary CD players). Indicator lights up during finalization.



13 AUTO/MANUAL

Switches between automatic and manual track numbering when recording a disc.

14 INPUT SELECTOR

Switches between the analog, optical digital and coaxial digital inputs.

15 Remote sensor

16 Character display

17 ◄◄ ►► / REC BALANCE

Press and hold for fast-reverse and fast-forward playback . Use when recording to set left and right input levels.Use to move cursor back and forth across character display while using CD text.

18 ►/❚❚

Press to play, pause, or resume playing, a disc. Also use to start recording from record-pause mode.

19 NAME

Use to cycle through CD text naming options.

20 ■

Press to stop playback or recording.

21 SYNCHRO

Press to start recording on detection of an input signal.

22 MENU/DELETE

Press to cycle through the preference menu options . Press to delete characters while editing CD text.

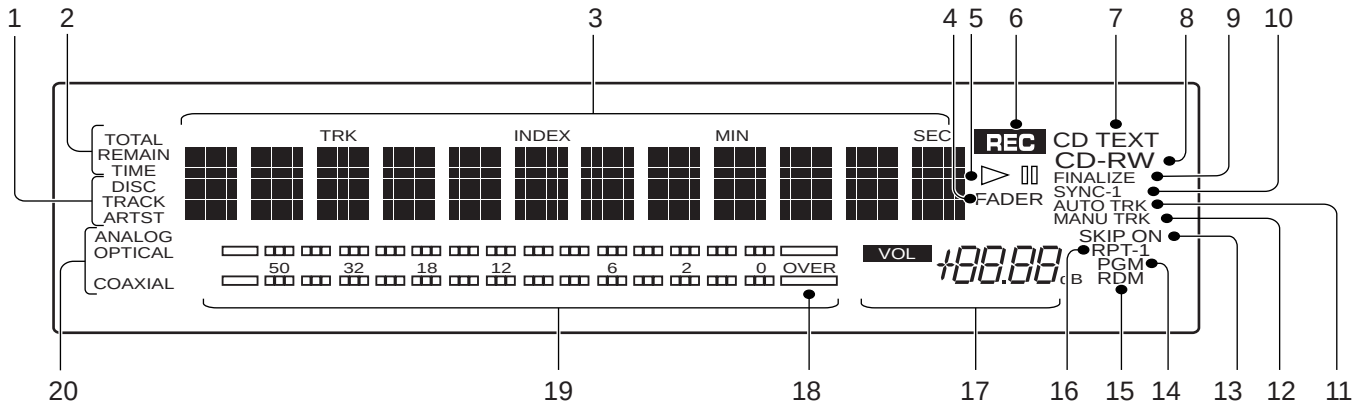
23 PHONES jack

Plug in a pair of stereo headphones for private listening or monitoring.

24 LEVEL

Use to adjust the phones volume.

Display



1 CD text indicators)

DISC Lights up when disc information is displayed.

TRACK Lights up when track information is displayed.

ARTST Lights up when artist information is displayed.

2 TOTAL / REMAIN / TIME

Indicates whether the current displayed time is elapsed, remaining, or total time for a disc or individual tracks.

3 Message/time display

4 FADER

Blinks during fade in or fade out.

5 ► Lights up during playback.

II Lights during play- or record-pause.

6 REC

Lights up to when recording or record-paused. Blinking display indicates record muting.

7 CD TEXT

Lights if the CD currently loaded contains CD text.

8 CD / CD-R / CD-RW

Indicates the type of disc currently loaded.

9 FINALIZE

Lights up if the CD-RW currently loaded has been finalized. Also blinks during automatic finalization recording .

10 SYNC / SYNC-1

Lights up when the recorder is in automatic synchro recording mode.

11 AUTO TRK

Lights when automatic track numbering is on during recording.

12 MANU TRK

Lights up when manual track numbering is on during recording.

13 SKIP ON

Lights up to indicate that a disc contains skip IDs. When setting or clearing skip IDs, the word SKIP blinks.

14 PGM

Lights up when program-play is active.

15 RDM

Lights up when random-play is active.

16 RPT / RPT-1

Lights up when repeat play is active.

17 Recording level balance

Displays the digital recording volume. If the balance has been changed, the indicator (L or R) of the louder channel lights up. Both indicators light when the balance is unchanged. Track numbers are displayed while using CD text.

18 OVER indicator

Indicates that the input signal overloaded the disc during recording.

19 Recording level meter

Displays the input level during recording, or the recorded level during playback.

20 ANALOG

Lights when the analog input is selected.

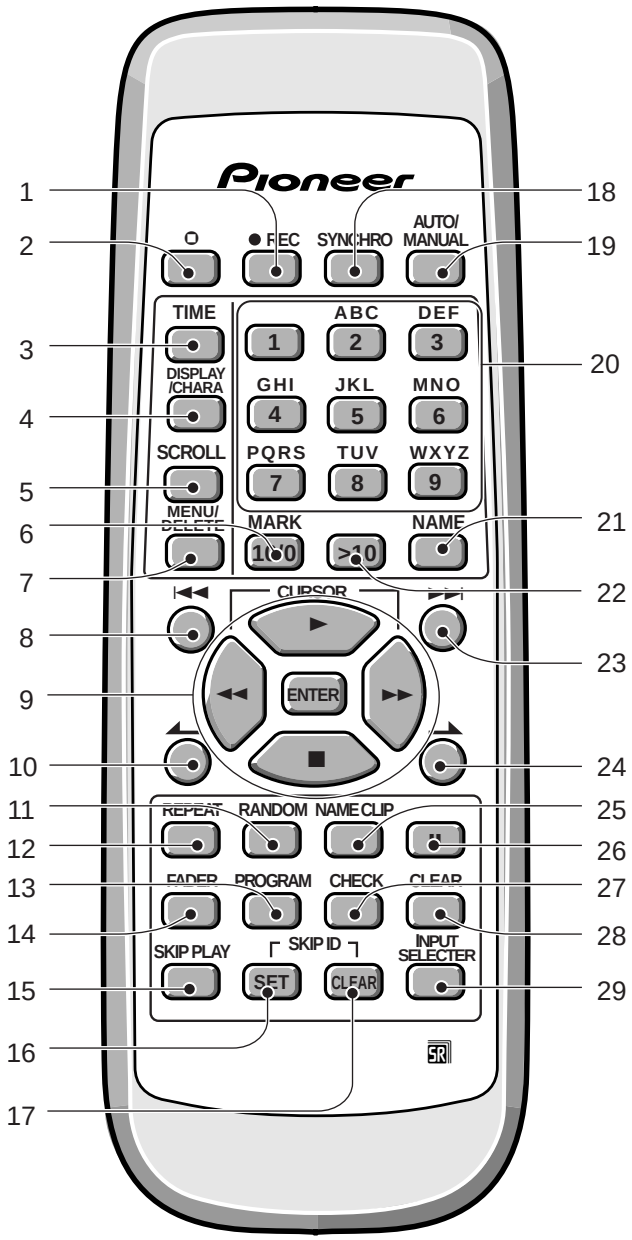
OPTICAL

Lights when the optical digital input is selected.

COAXIAL

Lights when the coaxial digital input is selected.

REMOTO CONTROL UNIT



1 O REC MUTE

Records a blank section on a disc (for space between tracks, etc.)

2 ● REC

Press to enter record-pause mode.

3 TIME

Switches the display mode (elapsed track time, remaining track time, total disc playing time, etc.)

4 DISPLAY/CHARA

Press to switch between display modes (disc title, artist name, track title), and between upper- and lower-case characters while using CD text .

5 SCROLL

Press to scroll through long names in CD text.

6 MARK / 10/0

Press to choose symbol characters when using CD text. As a numeric key, this represents zero.

7 MENU/DELETE

Press to cycle through the preference menu options. Press to delete characters while editing CD text.

8 ⏮

Press to skip backward tracks. Also performs those operations assigned to turning the jog dial .

9 Playback control / ENTER

► Press to play, or resume playing, a disc.

◄◄ and ►► Press and hold for fast-reverse and fast-forward playback, and to move cursor position using CD text.

■ Press to stop playback or recording.

ENTER Confirm playback, recording, menu settings, and characters in CD text.

10 ⟵

Press to skip backward index points.

11 RANDOM

Press to start random playback.

12 REPEAT

Use to set the repeat mode (current track, disc, or repeat off).

13 PROGRAM

Use to program the playback order of tracks on a disc.

14 FADER

Press to fade in or fade out during playback or recording.

15 SKIP PLAY

Press to switch skip play on and off.

16 SKIP ID SET

Instructs the player to skip a particular track on playback.

17 SKIP ID CLEAR

Clears the above setting.

18 SYNCHRO

Press to start recording on detection of an input signal.

19 AUTO/MANUAL

Switches between automatic and manual track numbering when recording a disc.

20 Number / Letter buttons

Use to jump directly to track numbers for playback, selecting track numbers for editing / programming, and selecting letters when using CD text.

21 NAME

Use to cycle through CD text naming options.

22 >10

Use to select track numbers over 10.

23 ⏭

Press to skip forward tracks. Also performs those operations assigned to turning the jog dial .

24 ⟶

Press to skip forward index points.

25 NAME CLIP

Press to copy the current CD text to the recorder's memory.

26 ❚❚

Press to pause playback or recording.

27 CHECK

Press repeatedly to step through the program playlist.

28 CLEAR

Press to clear the last track in a programmed playlist.

29 INPUT SELECTOR

Switches between the analog, optical digital and coaxial digital inputs.

8.2 SPECIFICATIONS

(For PDR-609/WV and WY type)

1 General

Model ..... Compact disc audio system
Applicable discs ..... CDs, CD-Rs and CD-RWs
Power supply ..... AC 220-240 V, 50/60 Hz
Power consumption ..... 14 W
Operating temperature ..... +5 °C to +35 °C
Weight (without package) ..... 3.5 kg
Max. dimensions ..... 420 (W) x 295 (D) x105 (H) mm

2 Audio unit

Frequency characteristics ..... 2 Hz to 20 kHz
Playback S/N ..... 112 dB (EIAJ)
Playback dynamic range ..... 98 dB (EIAJ)
Playback total harmonic distortion .... 0.0017 % (EIAJ)
Playback channel separation ..... 98 dB
Recording S/N ..... 92 dB
Recording dynamic range ..... 92 dB
Recording total harmonic distortion ..... 0.004 %
Output voltage ..... 2 V
Wow-flutter ..... Less than measurement limit ((±0.001 % W.PEAK) (EIAJ))
Number of channels ..... 2 channels (stereo)
Digital output:
Coaxial output ..... 0.5 Vp-p ±20 % (75 Ω)
Optical output –15 to –21 dBm (wavelength: 660 nm)
Frequency deflection: Level 2 (standard mode)

*Recording specification values are for the LINE input (analog)

3 Input jacks

Optical digital input jack
Coaxial digital input jack
Audio LINE input jack
Control IN jack

4 Output jacks

Optical digital output jack
Coaxial digital output jack
Audio LINE output jack
Control Text jack

5 Accessories

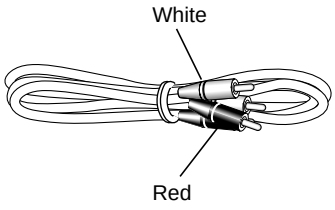
- Remote control unit 1
- Size AA/R6P dry cell batteries 2
- Audio cable 2
- AC power cord 1
- Operating Instructions 1

NOTE : The specifications and design of this product are subject to change without notice, due to improvements.

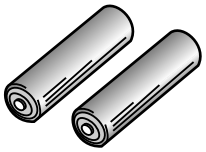
Accessories

- Remote control (PWW1169)

- Audio cable (PDE1249) (L=1m)



- dry cell batteries (size AA/R6) × 2 (VEM-013)



- AC Power cords
  (KU/CA: ADG7021)
  (WV: ADG7004)
  (WY: ADG1127)